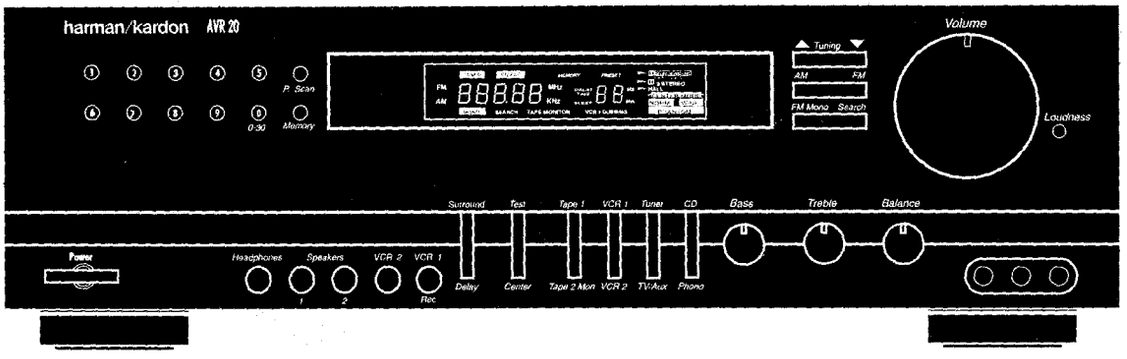
The Harman Kardon
Model AVR20

Manual 188A

AUDIO AND VIDEO RECEIVER

Technical Manual



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harman/kardon

Parts and Service Office
240 Crossways Park West, Woodbury, N.Y. 11797
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SPECIFICATIONS

	Nominal	Limit
● FRONT AMP SECTION		
RMS Output Power		
(Stereo Mode) Input: CD		
THD (0.09%, 8 ohms)	≧ 65 W	≧ 63 W
Both Channel Driven (40 Hz-10 kHz)		
(Surround Mode)	≧ 55 W	≧ 50 W
THD (0.09%, 8 ohms, 1 kHz)		
Im Distortion Input : CD	≦ 0.2%	≦ 0.3%
At 63 W, 60:7000 Hz = 4:1		
THD (40Hz-10KHz) at 8 ohms, 63 W Input: CD		
40 Hz	≦ 0.06%	≦ 0.09%
1 kHz	≦ 0.06%	≦ 0.09%
10 kHz	≦ 0.06%	≦ 0.09%
Input Sensitivity		
Phono (MM)	2.5 mV	±0.4 mV
CD, AUX, VCR	150 mV	±30 mV
S/N (WTD IHF-A) Input Shorted at Volume Max		
Phono	≧ 74 dB	≧ 70 dB
CD, Tape1, 2	≧ 92 dB	≧ 90 dB
TV, VCR1, 2	≧ 82 dB	≧ 80 dB
Phono Overload at 1 kHz, THD: 0.5%		
Phono Input → Take Output	≧ 140 mV	≧130 mV
Phono Equalization		
RIAA 30 Hz-15 kHz, Tape Mon, Output		
	RIAA dB	±1.5 dB
Tone Control		
Bass, 100 Hz	±10 dB	±2 dB
Treble, 10 kHz	±10 dB	±2 dB
Loudness control at -40 dB		
100 Hz	+6 dB	±2 dB
10 kHz	+3 dB	±2 dB
Frequency Response		
CD/AUX		
20 Hz, 20 kHz	±0.5 dB	±1 dB
Channel Crosstalk Input Shorted		
1 kHz	≧ 60 dB	≧ 50 dB
10 kHz	≧ 50 dB	≧ 40 dB
● CENTER AMP SECTION		
RMS Output Power		
THD < 0.3%, 8 ohms, 1 kHz	≧ 55 W	≧ 50 W
Only Center Channel Driven		
S/N		
Input Shorted, IHF A WTD	≧ 67 dB	≧ 65 dB
Line Input : 350 mV		
Frequency Response at -3dB		
Normal	100-20 kHz	150-15 kHz
Wide	20-20 kHz	50-15 kHz
● REAR AMP SECTION		
RMS Output Power		
(Both Rear Channels Connected)		
THD < 0.7%, 16 ohms, 1 kHz	≧ 27 W	≧ 25 W
Only Rear Channel Driven		
S/N		
Input Shorted, IHF A WTD,		
Delay: 20 mS, Line Input :350 mV		
Dolby	≧ 60 dB	≧ 55 dB
Hall	≧ 60 dB	≧ 55 dB
Frequency Response at -3 dB 80-7 kHz		100-6 kHz
8 ohms, Dolby Pro-Logic		
● VIDEO SECTION		
Input Sensitivity/Impedance		
VCR1, VCR2, VDP 1Vp-p/75 Ω	dB	±1 dB
Output Level/Impedance		
VCR1, REC out, TV Monitor Out		
1Vp-p/75 Ω	dB	±1 dB
Frequency Response -3dB		
DC -10	MHz	5-16 MHz
Crosstalk at 1.0 MHz	≧ 45 dB	≧ 40 dB
● FM SECTION		
Tuning Cover Range 50 kHz Step		
Low	87.5 MHz	
High	108.0 MHz	
Usable Sensitivity		
S/N 30 dB (Europe: 26 dB)	≦ 11.2 dBf	≦ 17.2 dBf
Image Rejection (at 106 MHz)	≧45 dB	≧ 35 dB
(Europe)	≧100 dB	≧ 90 dB
IF Rejection (at 90 MHz)	≧110 dB	≧ 100 dB
Full Limiting (at -3 dB)	≦ 12.2 dBf	≦ 15.2 dBf
50 dB Quieting Sen. at 98 MHz, 75 k DIV		
IHF Band Pass Filter		
Mono	≦ 17.2 dBf	≦ 23.2 dBf
Stereo	≦ 40.3 dBf	≦ 43.3 dBf
Distortion (1 kHz 100% MOD at 98 MHz)		
IHF Band Pass Filter		
Mono	≦ 0.2%	≦ 0.5%
Stereo	≦ 0.4%	≦ 0.7%
Signal-to-Noise (1 mV Input 100% MOD, at 98MHz)		
IHF Band Pass Filter		
Mono	≧ 70 dB	≧ 65 dB
Stereo	≧ 65 dB	≧ 60 dB
Frequency Response: +1, -3dB		
AM-Rejection Ratio	20-15.5 kHz	30-15 kHz
(100 μV-20mV Input)	≧ 60 dB	≧ 50 dB
Search Level (at 98 MHz)	29.2 dBf	± 5 dBf
Automatic Stereo Threshold (at 98 MHz)		
	29.2 dBf	± 5 dBf

	Nominal	Limit
Muting Threshold (at 98 MHz)	29.2 dBf	± 5 dBf
Overload at 98 MHz (100% MOD 100 mV RF Input)	≦ 0.2%	≦ 0.5%
Suprious Response (at 98 MHz Antenna Input 3 μV)	≧ 70 dB	≧ 60 dB
Capture Ratio 40/60 dBf	≦ 2 dB	≦ 2.5 dB
Alternative Channel Selectivity (Input at 98 MHz)	≧ 65 dB ±400 kHz	≧ 55 dB
Stereo Separation (100% MOD, 1 mV Input at 98 MHz)		
IHF Band Pass Filter		
100 Hz	≧ 40 dB	≧ 35 dB
1 KHz	≧ 45 dB	≧ 40 dB
10 KHz	≧ 35 dB	≧ 30 dB
Output Voltage (at 75 kHz DEV, 1 kHz MOD, 1 mV Input)		
Mono	500 mV	± 150 mV
Stereo	450 mV	± 150 mV

- AM SECTION

Tuning Cover Range 10 kHz/9 kHz Step		
Low	520/522 kHz	
High	1710/1611 kHz	
Usable Sensitivity (400 Hz, 30% MOD, S/N 20 dB)	≦ 500 μV/m	≦1000 μV/m
Image Rejection (at 1400 kHz)	≧ 35 dB	≧ 30 dB
IF Rejection (at 600 kHz)	≧ 60 dB	≧ 50 dB
AGC Figure of Merit (From 100 mV/m at 1000 kHz)	≧ 50 dB	≧ 45 dB
Distortion (400 Hz, 30% MOD, 5 mV/m Input)	≦ 0.8%	≦ 1.5%
IF Bandwidth (6 dB Down, 350 μV/m)	6 kHz	4-11 kHz
Audio Response (5 mV/m Input 1 kHz 0dB, 1000 kHz)	80 Hz	100 kHz
-6 dB	-2.3 kHz	2 kHz
Selecticity 350 μV/m ±10 kHz	≧ 35 dB	≧ 25 dB
Signal to NOise Ratio (1000 kHz, With Antenna Input 5 mV/m)	≧ 45 dB	≧ 40 dB
RF Overload 400 Hz 80% MOD, 100 mV/m Input	≦ 5%	≦ 10%
Search Level (at 1000 kHz)	800 μV	± 6dB μV
Output Voltage (400 Hz 30% MOD 5 mV/m Input)	165 mV	±40 mV
Whistle	≦ 10 %	≦ 15 %

- GENERAL

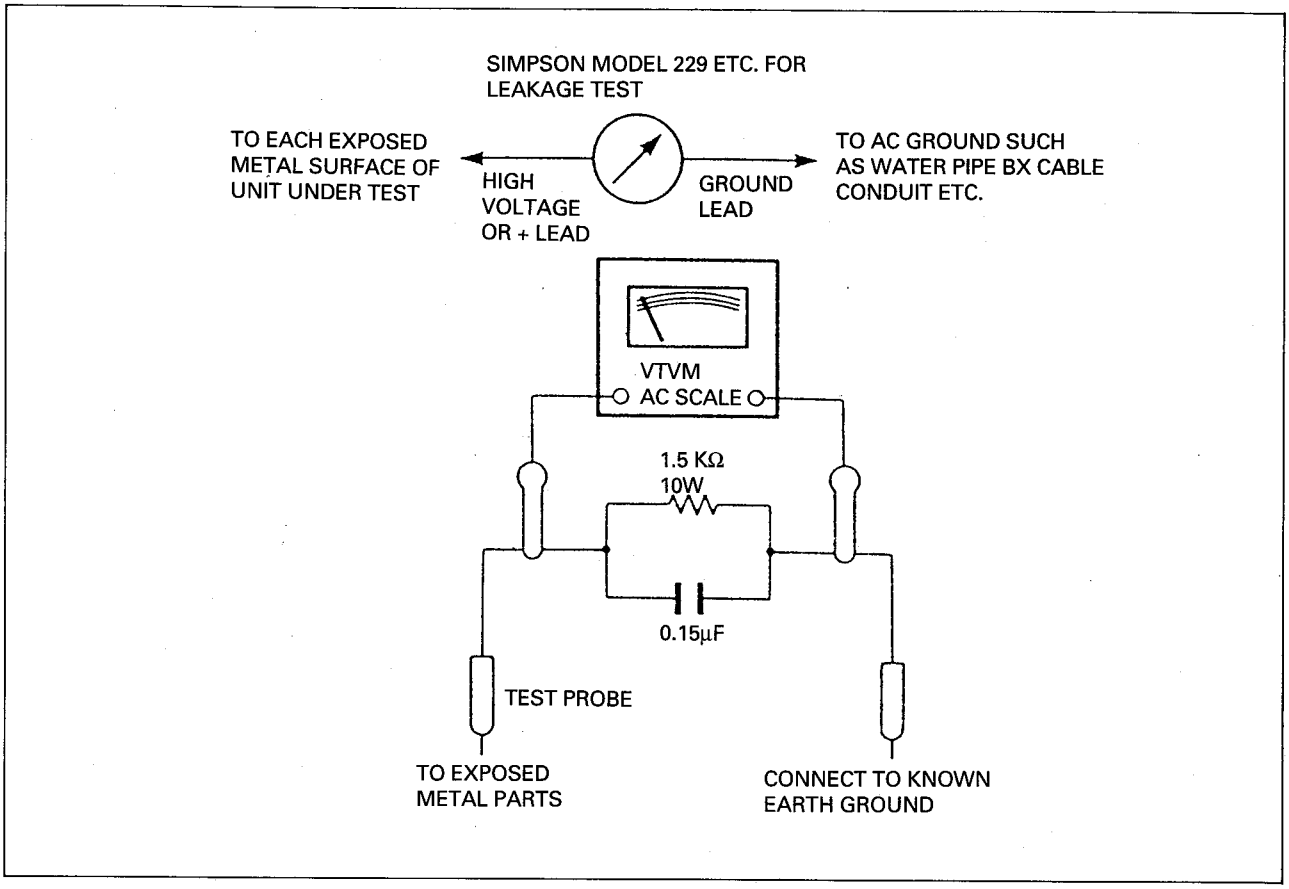
Speaker Load Impedance: 8Ω
Power Consumption
No Signal: 45 Watts
Full Signal at both Channels: AC 120 V, 60 Hz, 180 Watts
AC 230 V, 50 Hz, 500 Watts
Dimensions: (W) 17.5/16 x (H) 4 7/8 x (D) 14 15/16 Inches
(W) 440 x (H) 125 x (D) 380 mm
Weight: 23.59 lbs (10.7 kg)

Note : Nominal specs represent the design specs. All units should be able to approximate these-some will exceed and some may drop slightly below these specs. Limit specs represent the absolute worst condition that still might be considered acceptable; in no case should a unit fail to meet limit specs.
This manual is based on the American standard wiring diagram, and information on regional component variations through use of parts list. Design and specifications subject to change without notice for improvement.

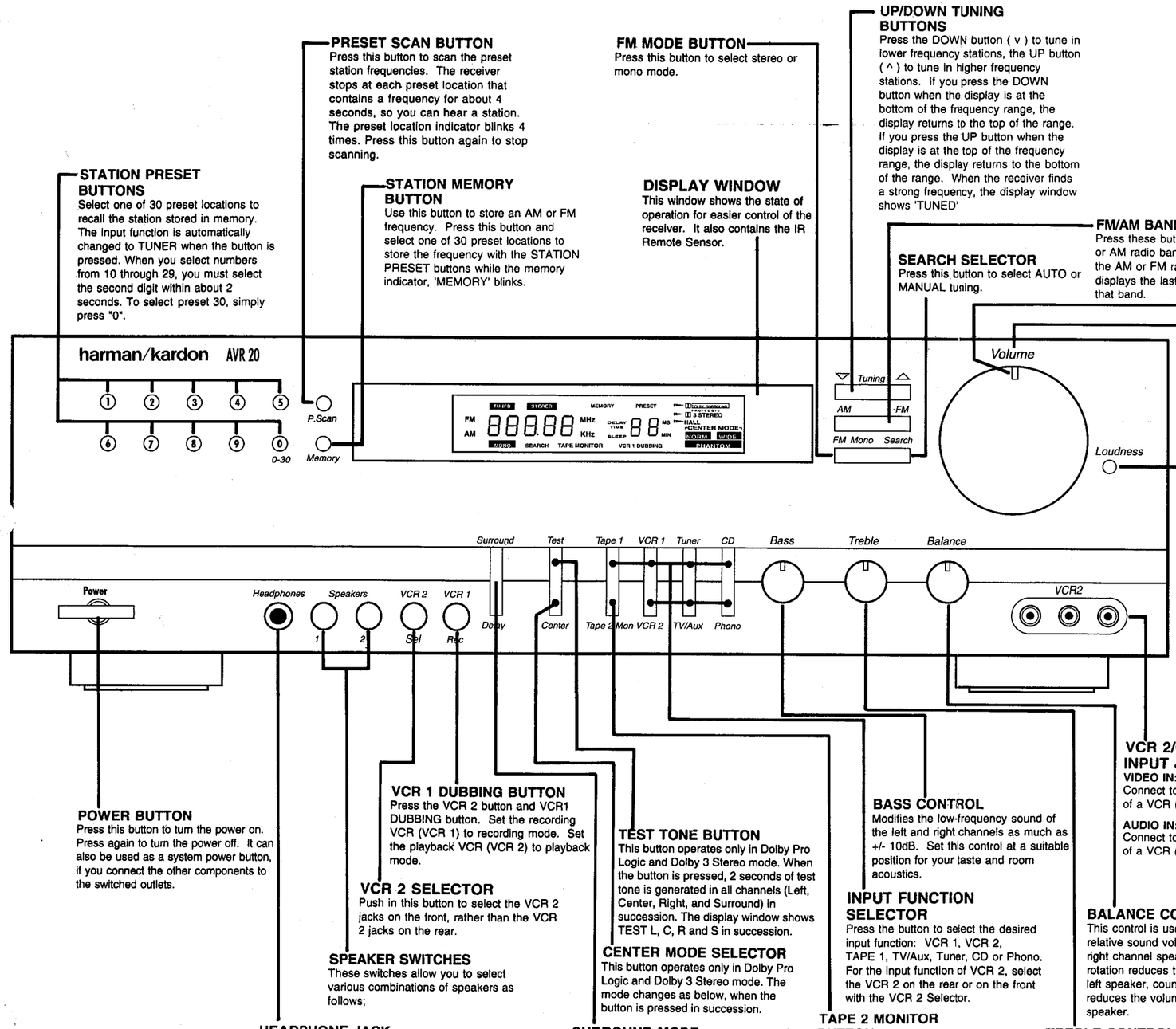
LEAKAGE TEST

Before returning the unit to the user, perform the following safety checks:

1. Inspect all lead dress to makes certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the unit.
2. Be sure that any protective devices such as nonmetallic control knobs, insulating fishpapers, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators, etc. Which were removed for servicing are properly reinstalled.
3. Be sure that no shock hazard exists; check for leakage current using Simpson Model 229 Leakage Tester, standard equipment item No. 21641, RCA Model WT540A or use alternate method as follows: Plug the power cord directly into a 120-volt AC receptacle (do not use an Isolation Transformer for this test). Using two clip leads, connects a 1500 Ohm, 10-watt resistor paralleled by a 0.15µF capacitor, in series with all exposed metal cabinet parts and a known earth ground, such as a water pipe or conduit. Use a VTVM or VOM with 1000 Ohms per volt, or higher sensitivity to measure the AC voltage drop across the resistor. (See Diagram.) Move the resistor connection to each exposed metal part having a return path to the chassis (antenna, metal cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor. (This test should be performed with the power switch in both the On and Off positions.)
   A reading of 0.35 volt RMS or more is excessive and indicates a potential shock hazard which must be corrected before returning the unit to the owner.


SIMPSON MODEL 229 ETC. FOR LEAKAGE TEST
TO EACH EXPOSED METAL SURFACE OF UNIT UNDER TEST
HIGH VOLTAGE OR + LEAD
GROUND LEAD
TO AC GROUND SUCH AS WATER PIPE BX CABLE CONDUIT ETC.
VTVM
AC SCALE
1.5 KΩ
10W
0.15µF
TEST PROBE
TO EXPOSED METAL PARTS
CONNECT TO KNOWN EARTH GROUND

CONTROL AND FUNCTIONS



PRESET SCAN BUTTON
Press this button to scan the preset station frequencies. The receiver stops at each preset location that contains a frequency for about 4 seconds, so you can hear a station. The preset location indicator blinks 4 times. Press this button again to stop scanning.

FM MODE BUTTON
Press this button to select stereo or mono mode.

UP/DOWN TUNING BUTTONS
Press the DOWN button (v) to tune in lower frequency stations, the UP button (^) to tune in higher frequency stations. If you press the DOWN button when the display is at the bottom of the frequency range, the display returns to the top of the range. If you press the UP button when the display is at the top of the frequency range, the display returns to the bottom of the range. When the receiver finds a strong frequency, the display window shows 'TUNED'

VOLUME LEVEL INDICATOR
This indicator moves in accordance with the volume level. The indicator blinks when the mute button on the remote commander is pressed.

STATION PRESET BUTTONS
Select one of 30 preset locations to recall the station stored in memory. The input function is automatically changed to TUNER when the button is pressed. When you select numbers from 10 through 29, you must select the second digit within about 2 seconds. To select preset 30, simply press "0".

STATION MEMORY BUTTON
Use this button to store an AM or FM frequency. Press this button and select one of 30 preset locations to store the frequency with the STATION PRESET buttons while the memory indicator, 'MEMORY' blinks.

DISPLAY WINDOW
This window shows the state of operation for easier control of the receiver. It also contains the IR Remote Sensor.

FM/AM BAND SELECTOR
Press these buttons to select the FM or AM radio band. When you select the AM or FM radio band, the receiver displays the last frequency selected on that band.

SEARCH SELECTOR
Press this button to select AUTO or MANUAL tuning.

VOLUME CONTROL
Turn the VOLUME clockwise to increase the volume and counterclockwise to decrease it. The volume of the front, center, and rear channels is changed at the same time.

LOUDNESS BUTTON
Press this button to compensate for the response of the human ear at low. listening levels (known as the Fletcher-Munson hearing curve). The high and low frequencies are automatically boosted when this button is pushed in. In the OFF position, the frequency response is flat at all volume levels. This button does not work at high volume levels.

POWER BUTTON
Press this button to turn the power on. Press again to turn the power off. It can also be used as a system power button, if you connect the other components to the switched outlets.

VCR 1 DUBBING BUTTON
Press the VCR 2 button and VCR1 DUBBING button. Set the recording VCR (VCR 1) to recording mode. Set the playback VCR (VCR 2) to playback mode.

VCR 2 SELECTOR
Push in this button to select the VCR 2 jacks on the front, rather than the VCR 2 jacks on the rear.

SPEAKER SWITCHES
These switches allow you to select various combinations of speakers as follows;

HEADPHONE JACK
Stereo headphones can be plugged into this jack for private listening. Headphone impedance should be between 8 and 2K ohms. Best results between 200 and 400 ohms.

TEST TONE BUTTON
This button operates only in Dolby Pro Logic and Dolby 3 Stereo mode. When the button is pressed, 2 seconds of test tone is generated in all channels (Left, Center, Right, and Surround) in succession. The display window shows TEST L, C, R and S in succession.

CENTER MODE SELECTOR
This button operates only in Dolby Pro Logic and Dolby 3 Stereo mode. The mode changes as below, when the button is pressed in succession.

SURROUND MODE SELECTOR
Press this switch to select the desired surround mode. The mode is changed as below, when it is pressed in succession.

BASS CONTROL
Modifies the low-frequency sound of the left and right channels as much as +/- 10dB. Set this control at a suitable position for your taste and room acoustics.

INPUT FUNCTION SELECTOR
Press the button to select the desired input function: VCR 1, VCR 2, TAPE 1, TV/Aux, Tuner, CD or Phono. For the input function of VCR 2, select the VCR 2 on the rear or on the front with the VCR 2 Selector.

TAPE 2 MONITOR BUTTON
Set TAPE 2 MONITOR to the "off" position when you want to hear the other input functions. Press this button to monitor the cassette deck connected to the TAPE 2 MON input jacks.

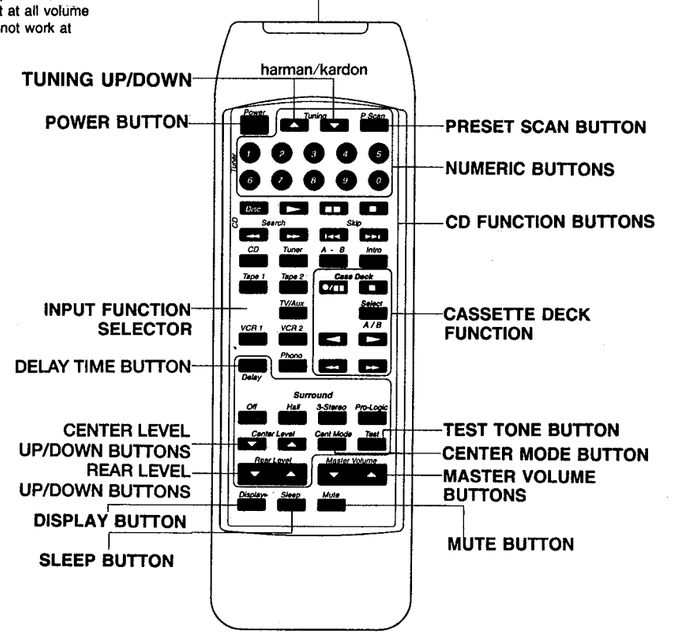
VCR 2/CAMCORDER INPUT JACKS
VIDEO IN:
Connect to the VIDEO OUTPUT jack of a VCR (Yellow jack).

AUDIO IN:
Connect to the AUDIO OUTPUT jacks of a VCR (Red and White jacks).

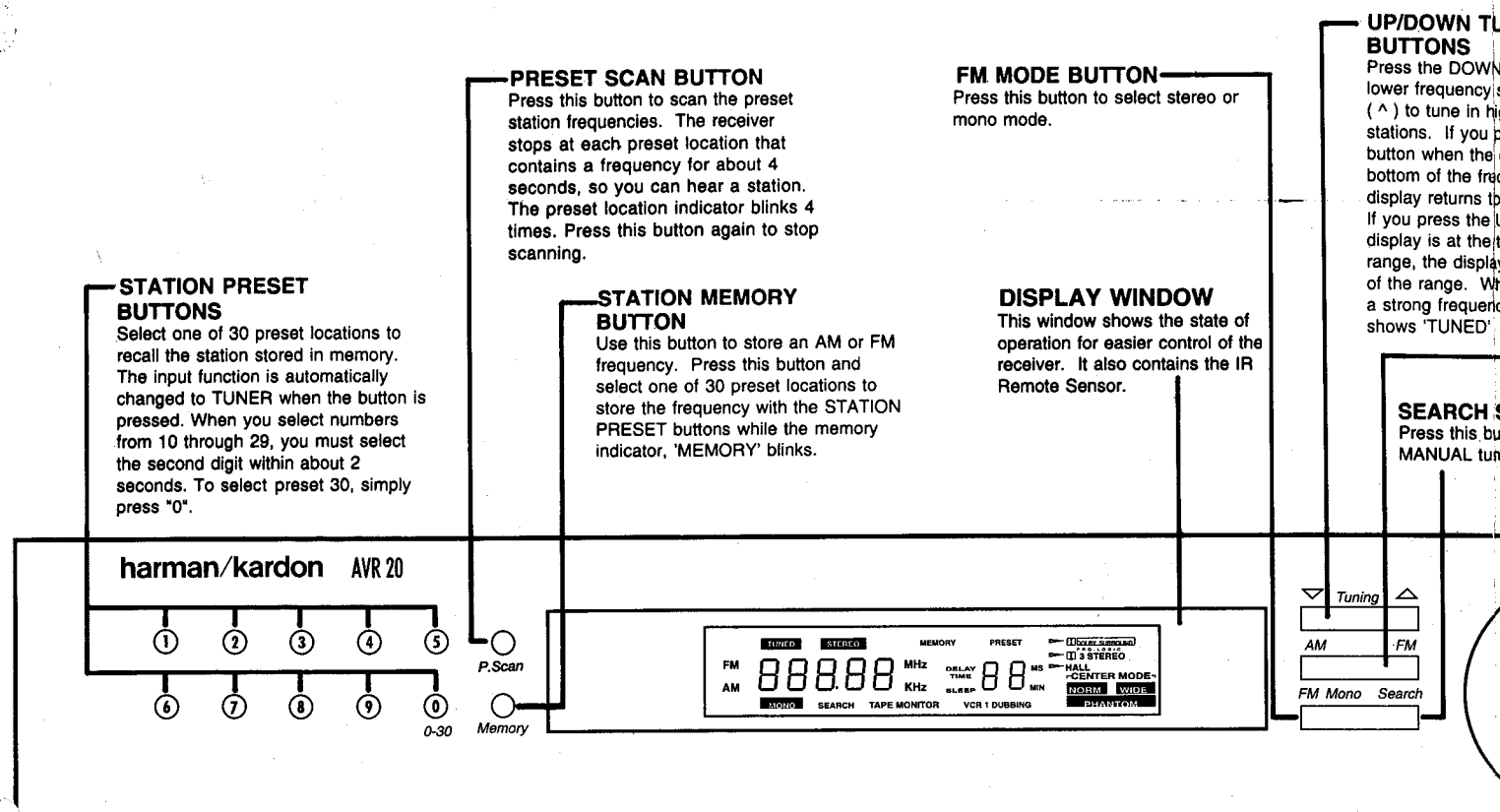
BALANCE CONTROL
This control is used for balancing the relative sound volume of the left and right channel speakers. Clockwise rotation reduces the volume from the left speaker, counterclockwise rotation reduces the volume from the right speaker.

TREBLE CONTROL
Modifies the high-frequency sound of the left and right channels as much as +/- 10dB. Set this control at a suitable position for your taste and room acoustics.

REMOTE CONTROL



CONTROL AND FUNCTIONS



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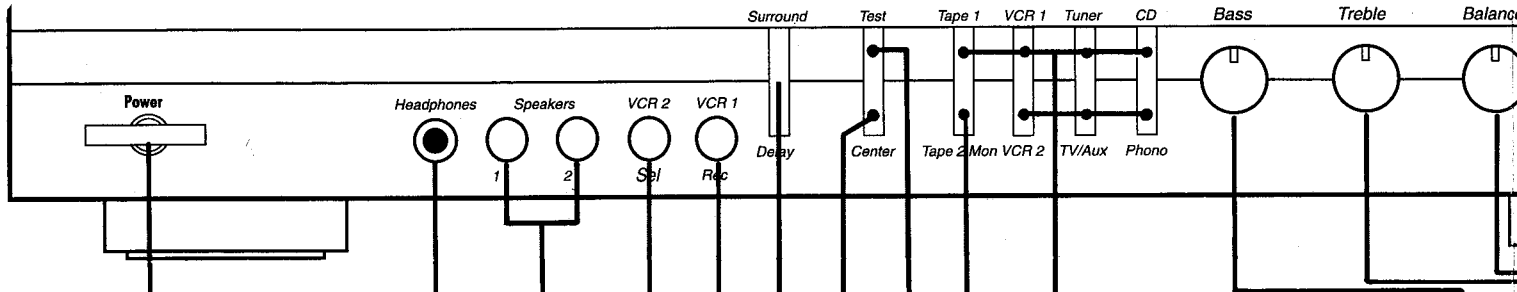

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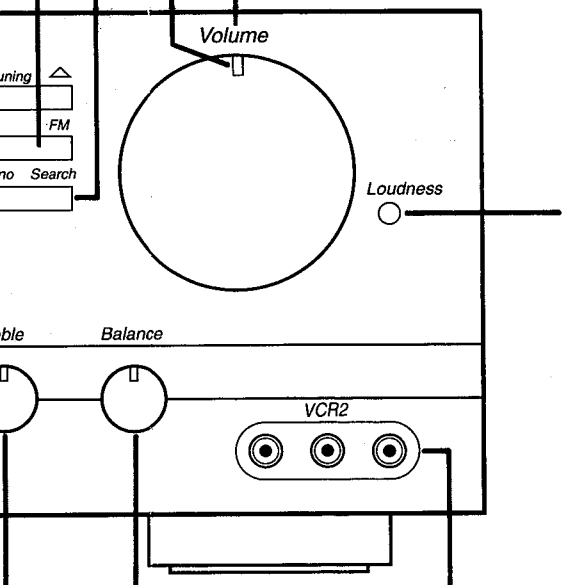

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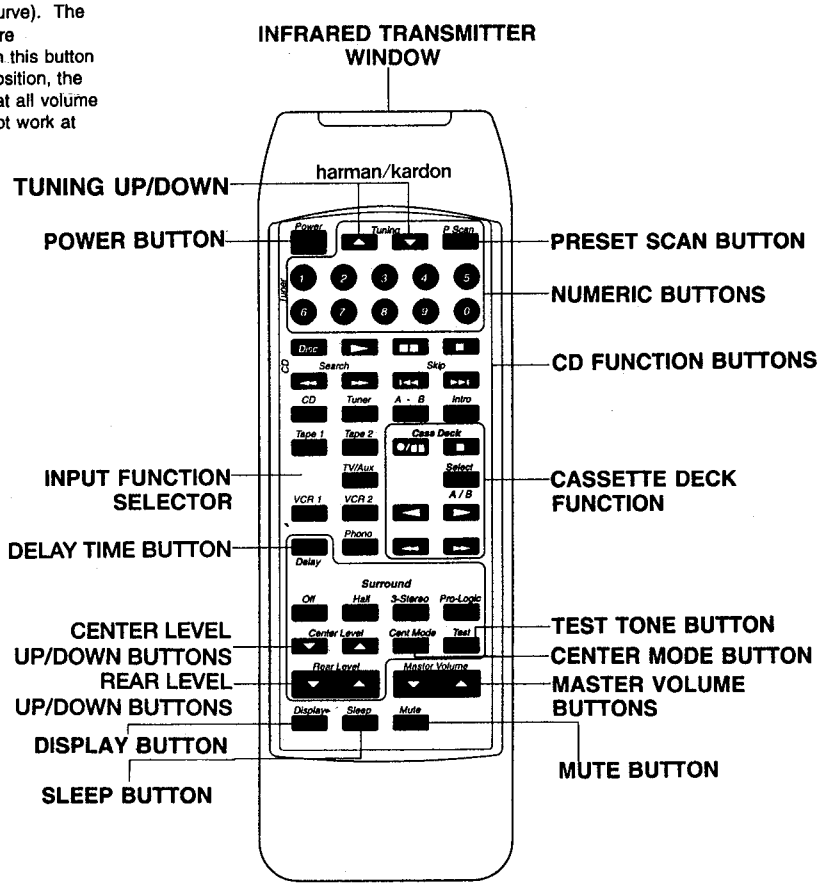
REMOTE CONTROL



INSTRUMENT DISASSEMBLY

MODEL NO. : AVR-20

NOTE: The item numbers given in the following procedures refer to the exploded view and parts list.

[1] Cover top removal

1. Remove 6 screws (S6) from the sides of chassis to release the cover top.
2. Remove 2 screws (S1) from the chassis back (item #34).
3. Carefully lift the cover top to remove.

[2] Cover bottom removal

1. Remove 10 screws (S7) from the chassis to release the cover bottom(item #29).
2. Carefully lift the cover bottom to remove.

[3] Panel Front Assembly removal

1. Remove the cover top.
2. Remove 4 screws (S4) from both side of panel front.
3. Remove 3 screws (S1) from the chassis front (item #50)
4. Disconnect CP102 from the volume PC Board.
5. Disconnect CNT602 from the surround PC Board.
6. Disconnect CP701 and CP702 from the input PC Board.
7. Disconnect CP703 from the video PC Board.
8. Remove 1 screw (S1) from the chassis right (item #31) for remove the lug wire.
9. Disconnect CP901, CP902 and CP402 from the main PC Board.
10. Remove the flat cable from the wafer (CP401) on input PC Board.

[4] Volume PC Board removal

1. Remove the panel front assembly.
2. Disconect CP603 from Volume PC Board.
3. Pull the knob (main volume).
4. Remove the hex nut from the volume-motor (item #23) to release the volume PC Board.
5. Remove 2 screws (S1) from the panel front (item #1).
6. Pull the volume PC Board from the panel front assembly to remove.

[5] Speaker PC Board Removal

1. Remove the panel front assembly.
2. Remove 4 screws (S1) from the panel front (item #1) to release the headphone PC Board.

[6] Tone PC Board Removal

1. Remove the panel front assembly.
2. Pull out the knobs (bass, treble, balance) from panel front assembly.
3. Remove the hex nut from the variable resistors (item #17 and 18).
4. Remove 4 screws (S4)
5. Remove the shield fence (item # 19).

[7] Front PC Board Removal

1. Remove the panel front assembly.
2. Remove 11 screws (S4) holding the front PC Board to release the panel front (item #1).

[8] Tuner PC Board Removal

1. Remove the cover top.
2. Remove 1 screw (S4) from the tuner PC Board fixed by bracket PCB (item #30)
3. Remove 2 screws (S8) holding the terminal antenna AM and FM (item # 33) to the chassis back (item # 34).

[9] Surround PC Board Removal

1. Remove 2 screws from the chassis back and chassis front (item # 50).
2. Disconect CNT 602 from the surround PC Board.
3. Remove the surround PC Board.

[10] Video PC Board Removal

1. Remove the cover top.
2. Disconnect CP101, CP104 and CP703 from the video PC Board.
3. Disconnect CP301 from the main PC Board.
4. Remove 3 screws (S2).
5. Remove 2 screws (S8).

[11] Outlet PC Board Removal (Europe Only)

1. Remove the cover top.
2. Unsolder 2 leads of the AC-cord (item #53) from pin-L and pin-N on the outlet P.C. Board.
3. Remove 2 screws (S2) holding the PC Board.

[12] Chassis back Removal

1. Remove the cover top.
2. Do steps [8], [9] and [10].
3. Remove 6 screws (S2) holding the terminal speaker (item # 47) from the chassis back.
4. Remove 2 screws (S1) holding the bracket heatsink (item #42) from the chassis back.
5. Remove 4 screws (S1) from the chassis left (item # 49) and chassis right (item # 31).
6. Remove 1 (S1) screw from the chassis botoom.
7. Remove 1 (S1) screw from the chassis back..

[13] Input PC Board Removal

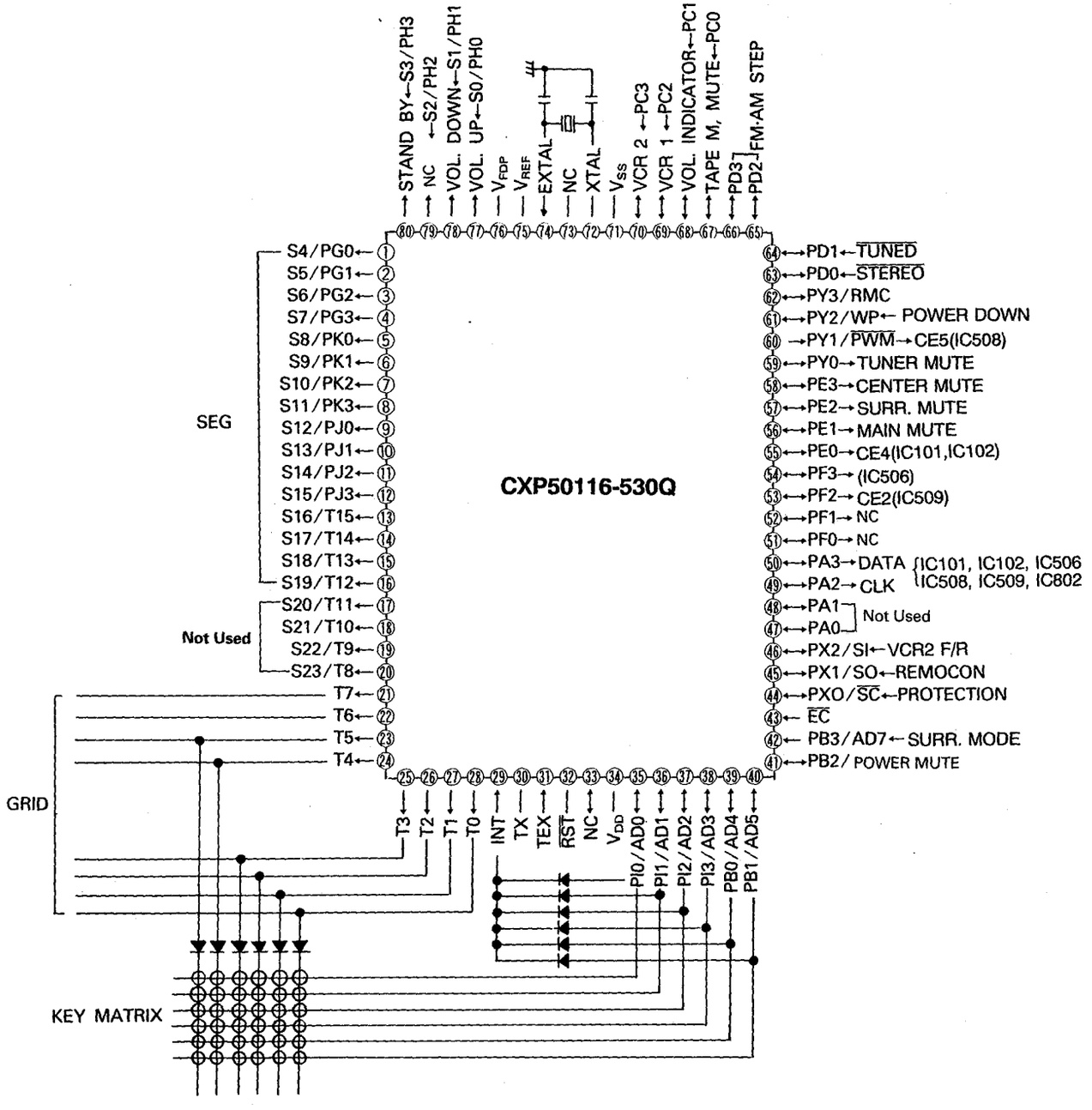
1. Remove the cover top.
2. Remove the panel front assembly.
3. Remove the chass back.
4. Unsoler all leads of Q116, Q112, Q115, Q123, Q126 and Q127 from copper track on the input PC Board.
5. Disconnect CP103, CP109 and CP206 (black) from main PC Board.
6. Disconnect CP110, CP204,CP207 from intput PC Board.
7. Remove 2 screws (S1) from the chassis front.
8. Remove 2 screws (S4) from the chassis right.
9. Remove 1 screw (S1) for unjoin input PC Board and bracket heatsink.

[14] Main PC Board Removal

1. Remove the cover top.
2. Remove the panel front assembly
3. Remove the chass back.
4. Unsoler all leads of Q216L/R, Q217L/R and Q213L/R from copper track on the input P.C. Board.
5. Disconnect CP201, CP202, CP203, CP204, CP206 (yellow), CP207H and CP207T from main P.C. Board.
6. Remove 1 screw (S1) from the chassis front.
7. Remove 1 screw (S4) from the chassis left.
8. Remove 1 screw (S1) for unjoin main P C Board and bracket heatsink.

CIRCUIT DESCRIPTION

CPU (4 bit CMOS MICROPROCESSOR : CXP50116-530Q)

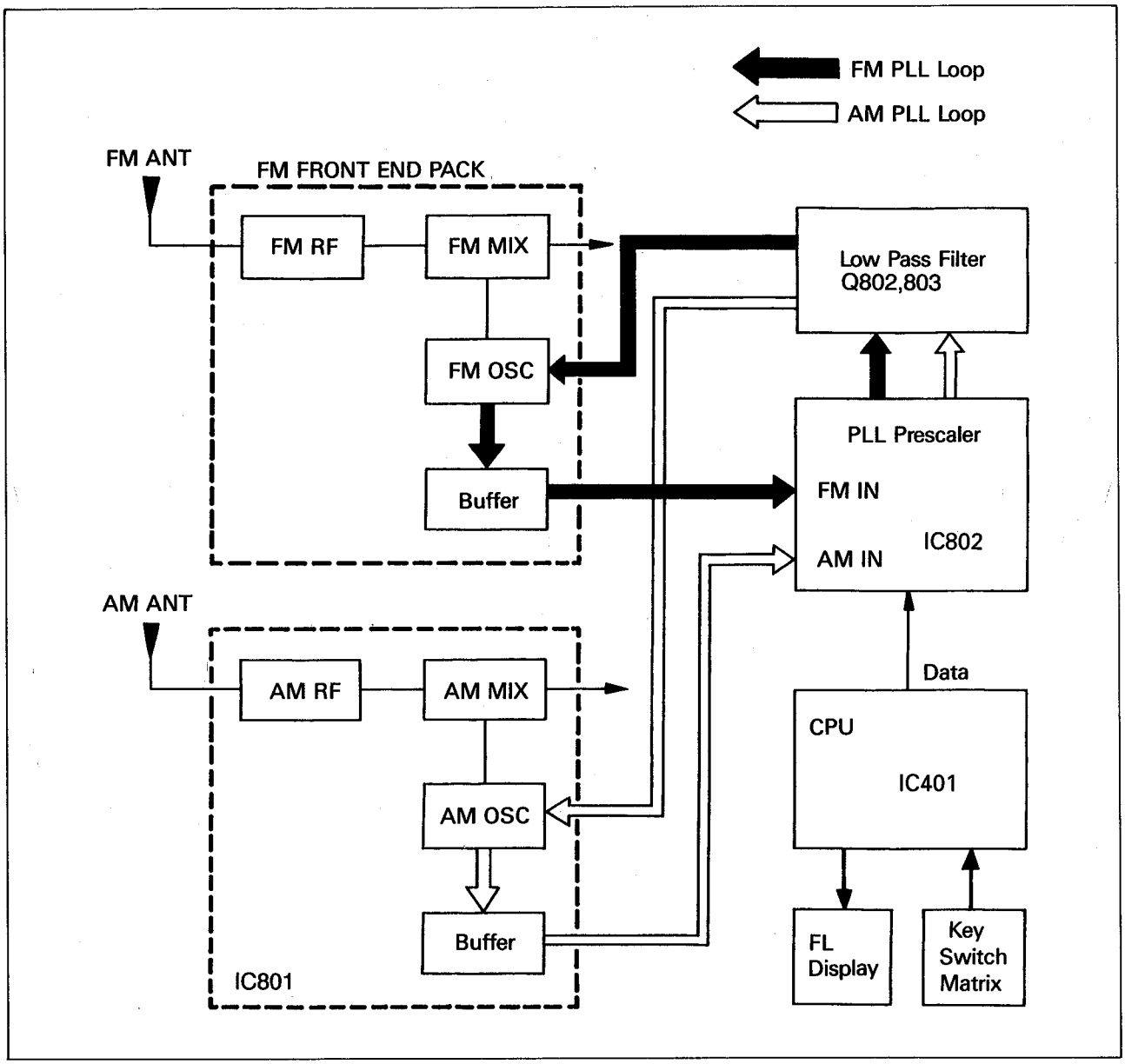


INPUT AND OUTPUT TERMINAL FUNCTIONS

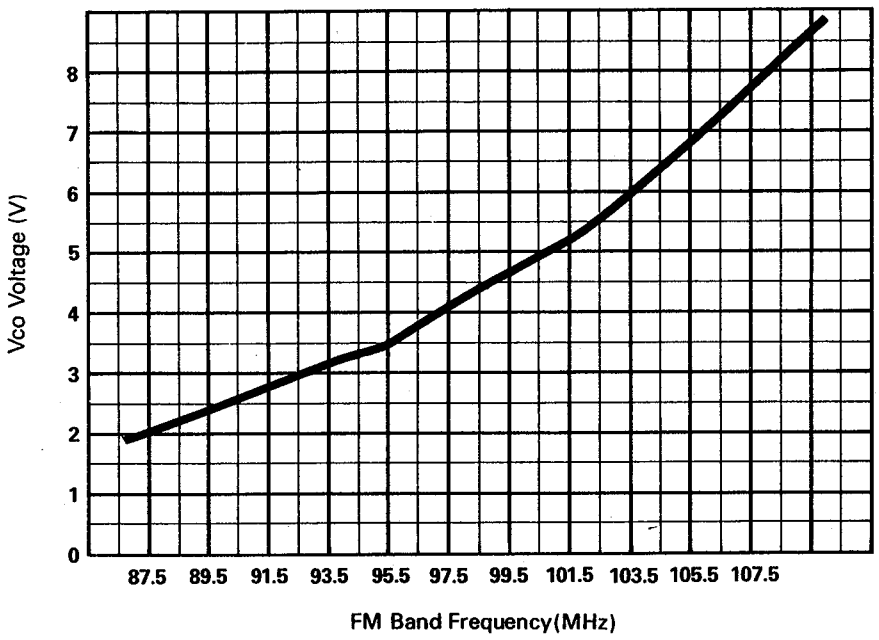
Code	Function
S4/PG0-S19/T12	These are segment signal output pins of FL controller/driver.
S20/T1-S23/T8	Not used
T7-T 0	These are timing signal output pins of FL controller/driver and key scan pins.
INT	This is external interrupt dedicated pin.
TX, TEX	Not used
RST	This is the system reset of the device.
NC	No connection
V_{DD}	This is the power supply pin.
PI0/AD0-PB1/AD5	These are the key input pins.
PB2/AD6	This is the power mute output pin.
PB3/AD7	This is the channel mode control pin of surround mode.
EC	Not used.
PX0	This is the protection input pin.
PX1	This is the remote control input pin.
PX2	This is the VCR2 front and rar input control pin.
PA0	Not used.
PA1	Not used.
PA2-PA3	These are used to control the PLL IC, analog switching IC. Shift register IC, volume IC, delay IC. (CLK, DATA)
PF0	This is the FM mode colntrol pin.
PF1	This is used to control the PLL IC.
PF2	This is used to control the shift register IC.
PF3	This is used to control the volume IC.
PE0	This is used to control at analog switching IC.
PE1	This is the main mute output pin.
PE2	This is the surround mute output pin.
PE3	This is the center mute output pin.
PY0	This is the tuner mute output in.
PY1	This is used to control the delay IC.
PY2	This is the power down pin.
PY3	Not used.
PD0	This is the tuner stereo input pin.
PD1	This is the tuner tuned input pin.
PD2-PD3	These are used to control FM and AM step.
PC0	This is used to eliminate the noise of the PLL IC in the Tape 2 Monitor mode.
PC1	This is used to control volume indicator.
PC2	This is used to control VCR1
PC3	This is used to control VCR2
V_{SS}	This pin provides the ground potential.
XTAL, EXTAL	These pin serve for connecting a clock oscillator crystal.
NC	No connection.
V_{REF}	Not used.
V_{FDP}	This is the power supply pin of the FL controller.
PH0-PH1	These are used to control the motor volume.
PH2	Not used.
PH3	This is used to control stand-by mode.

DIGITAL TUNING SYSTEM DESCRIPTION

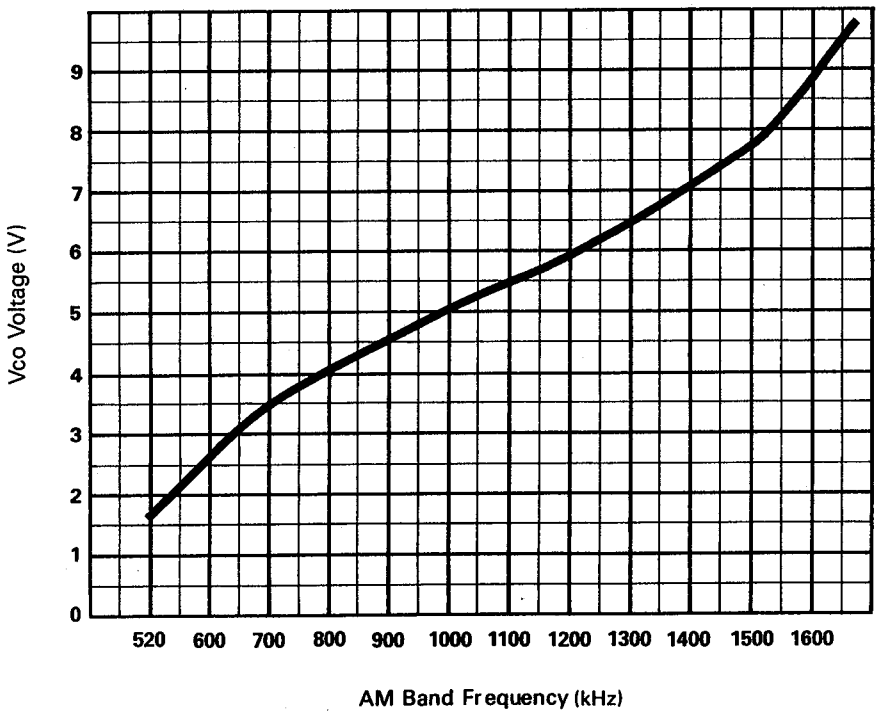
DIGITAL TUNING SYSTEM



Vco vs. FM Band Frequency Curve



Vco vs. AM Band Frequency Curve



CONTROL KEY AND MODE SWITCH MATRIX

Searching for station

Automatic Tuning

Press the AUTO SEARCH key for automatic tuning.

Pressing the TUNE △ or TUNE ▽ key causes automatic up or down searching for a station until a station is received.

Manual Tuning

By pressing the TUNE △ or TUNE ▽ key, the frequency is changed by a step. If the key is kept pressing scanning is continued until the key is released.

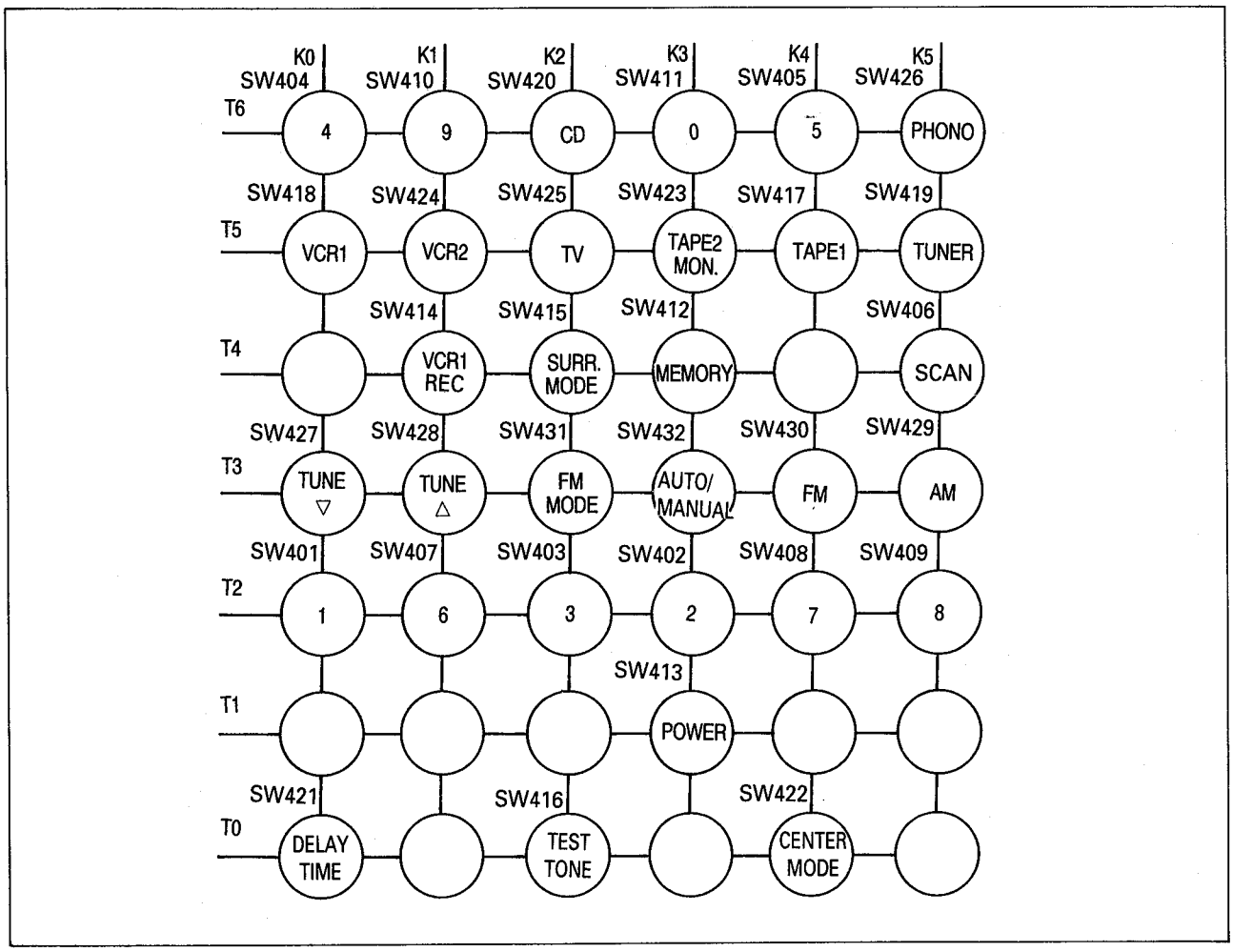
Memory

The tuning information is stored into an internal RAM by pressing the MEMORY key and the pressing one of 30 preset locations while the memory indicator 'MEMORY' blinks.

If no key is pressed while the indicator blinks, the memory function is canceled.

M1 to M10

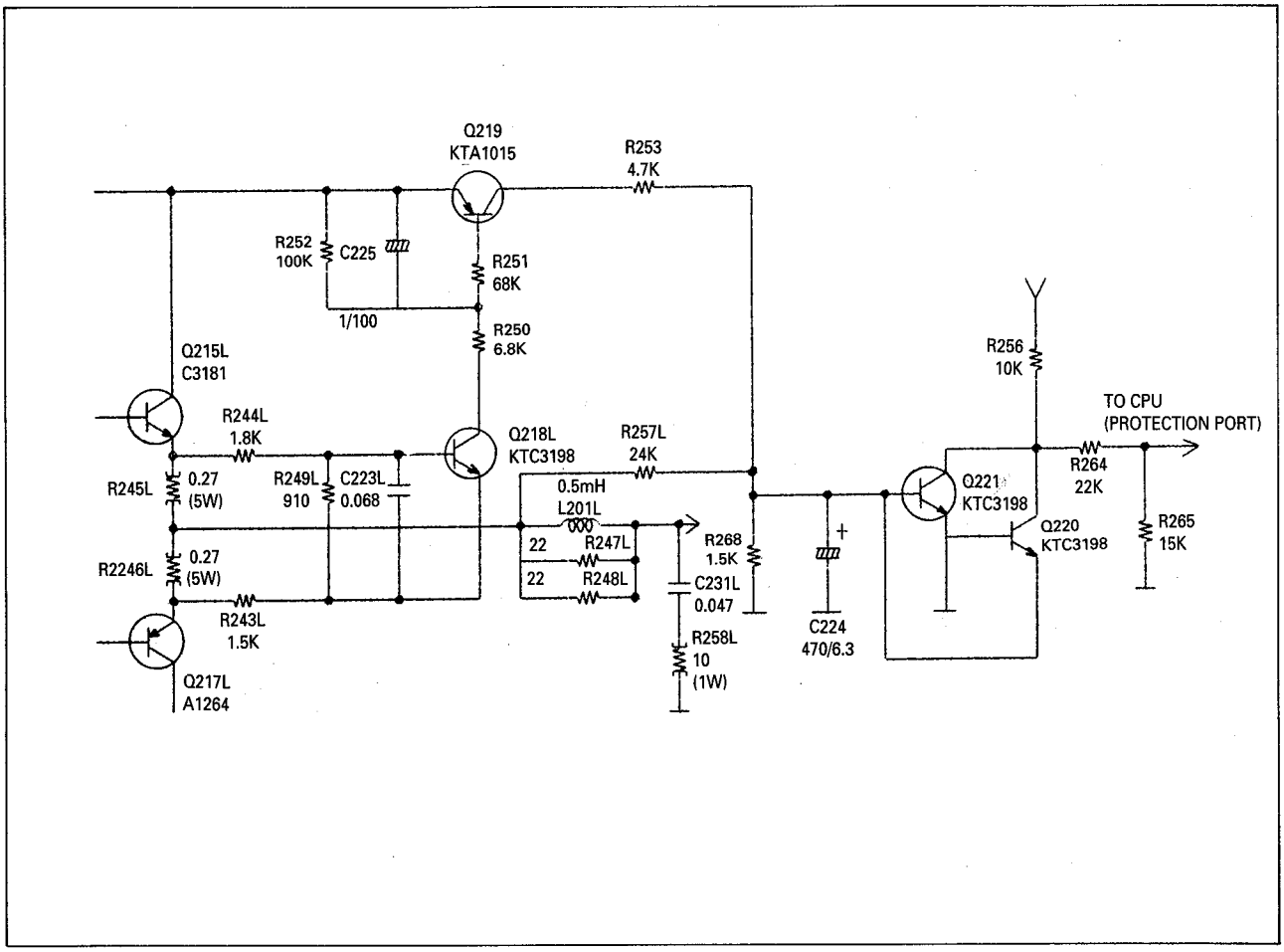
Thirty AM and FM stations can be recalled from internal RAM. When It is is switched from one band to the other band, the tuner tunes to the station last tuned on that band. Each time a station is changed, the controller provides a signal to mute the tuner.



PROTECTION CIRCUITS

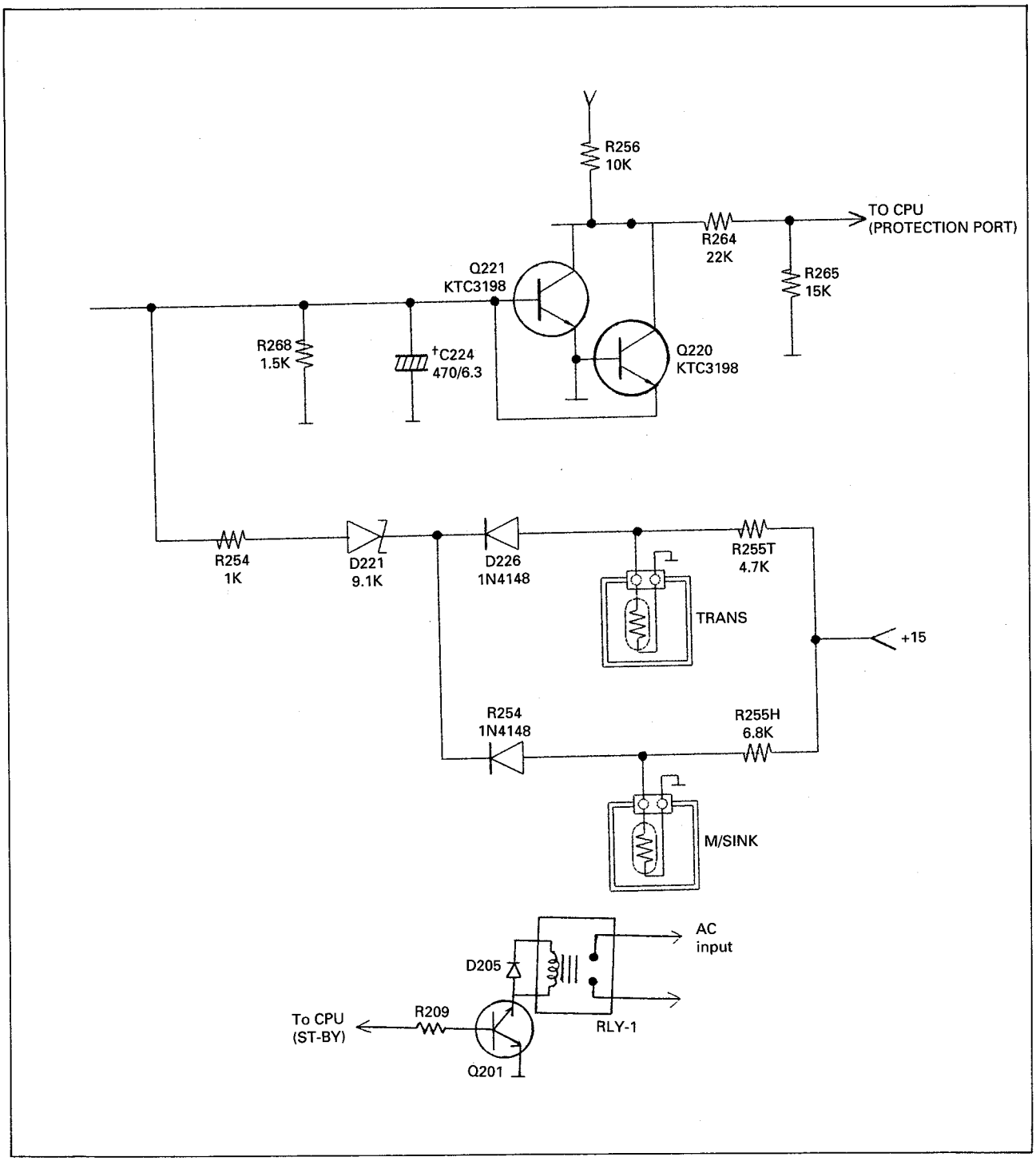
SPEAKER PROTECTION CIRCUIT

The CPU protects both this unit and the speakers when an abnormally high current flows in Q216 L/R and Q217 L/R due to excessive input drive, too low of a load impedance, or short of the speaker terminals. If current increase is excessive the voltage across R245 L/R or R246 L/R turns on Q218 L/R, then Q219 turns on Q221.
It makes the protection port of the CPU to low state, and the CPU turns off Q201 and RLY-1.
Then the power is turned off.



THERMAL PROTECTION CIRCUIT

This receiver has a overload thermal protection circuits to guard against abnormal operation.
When the temperature of TRANS POSISTOR installed with the main transformer or H/SINK POSISTOR rises abnormally, the resistance of the posistor becomes larger and Q221 is turned on.
It makes the protection port of the CPU to Low state, and the CPU turns off Q201 and RLY-1.
Then the power is turned off.



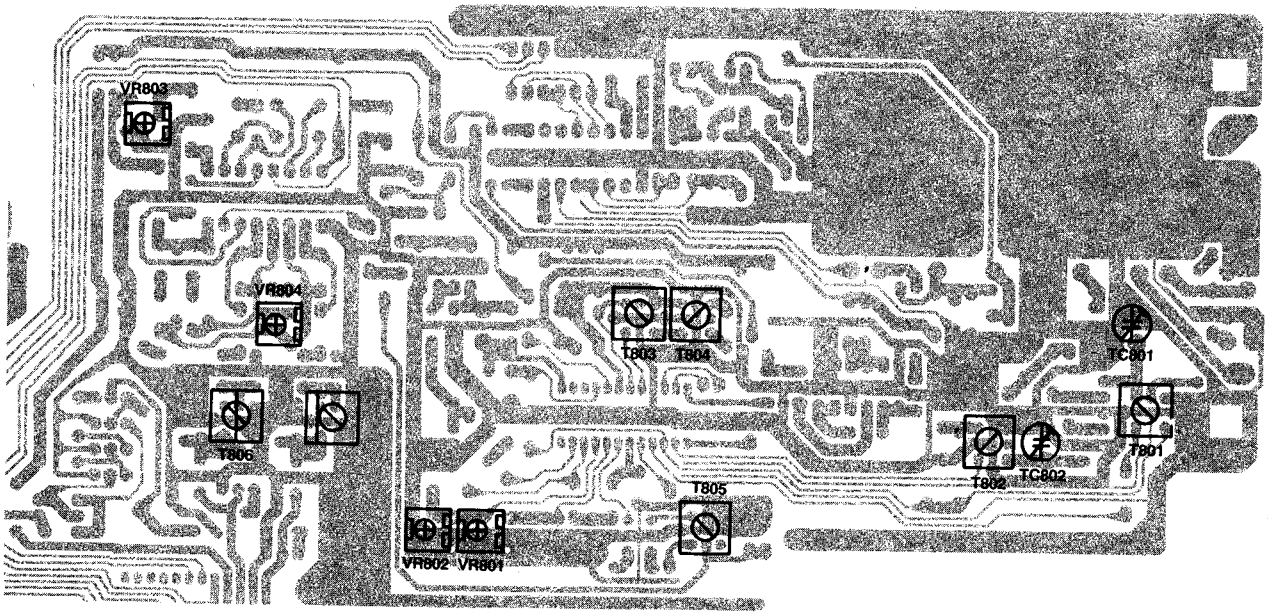
ALIGNMENT PROCEDURES

Equipment Required

- AM signal generator
- Oscilloscope
- AC voltmeter
- FM signal generator
- Stereo modulator
- Audio generator
- Distortion meter
- DC voltmeter
- Frequency counter

Note: Remove line cord antenna from FM external antenna terminal when aligning.

Alignment and Test Points (Tuner P.C.Board)



AM IF and RF Alignment

Preparation

1. Output of Signal Generator should not be higher than necessary to obtain an optimum output reading.
2. Signal Generator Modulation: 30%.
3. Switch: Press to AM.

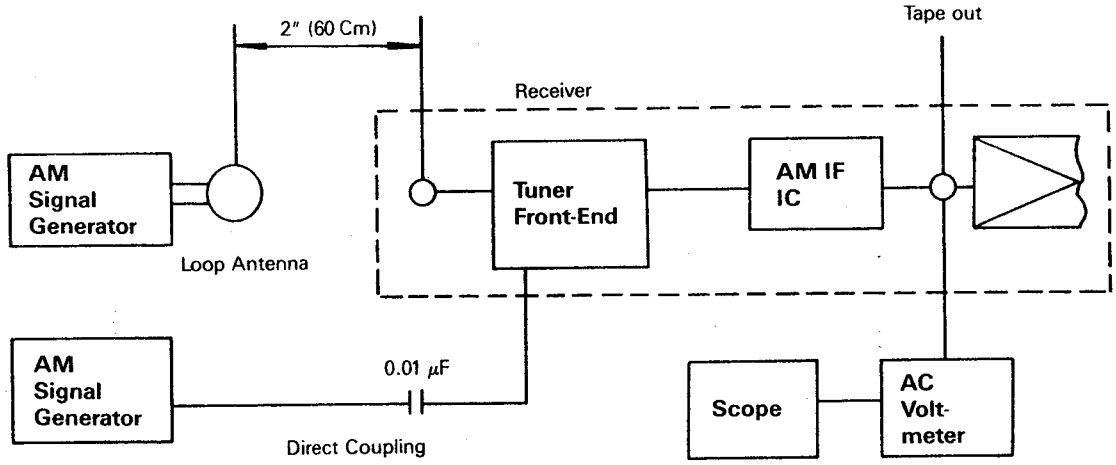
Step	Signal Generator Frequency	Receiver Frequency on the Display	Equipment Connection	Adjustment Point	Adjust for
1	450 kHz (400 Hz, Mod.)	Place at a non-interference spot around 600 kHz	AC voltmeter to TAPE OUT jack.	T805 (IFT)	Maximum reading
2	600 kHz (400 Hz, Mod.)	600 kHz	Same as Step 1.	T801 (ANT Coil)	Same as Step 1
3	1400 kHz (400 Hz, Mod.)	1400 kHz	Same as Step 1.	TC801 (ANT Trimmer)	Same as Step 1
4	1000 kHz (400 Hz, Mod.)	1000 kHz	FL display TUNED indicator	VR802	Indication on receiver with output of 500 μV/m

FM IF Alignment

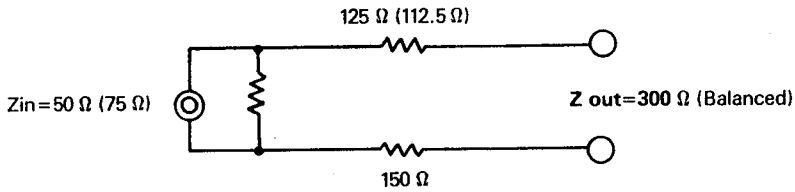
Preparation

1. Signal Generator output should be no higher than necessary to obtain an optimum output reading.
2. Switch: Press to FM.
3. Signal generator deviation: 75 kHz.

Step	Signal Generator Frequency	Receiver Frequency Display	Equipment Connection	Adjustment Point	Adjust for
1	98.1 MHz (1 kHz, Mod.)	98.1 MHz	Distortion meter to TAPE OUT jack	T804	Minimum distortion
2	98.1 MHz (1 kHz, Mod.)	98.1 MHz	Same as Step 1	VR801	Zero reading on AC voltmeter with SSG output level of 6 μV



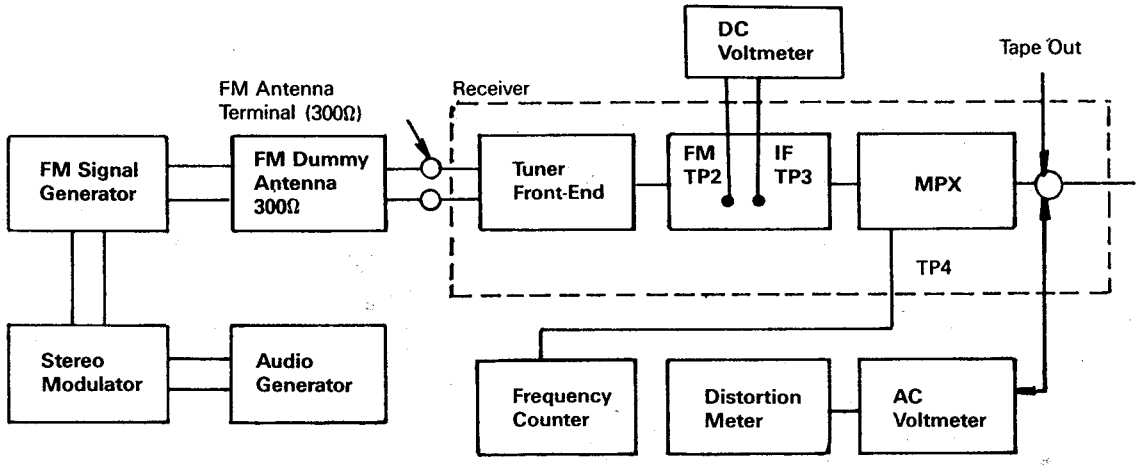
AM Alignment Connection



FM Dummy Antenna to 300 Ω Antenna terminal of receiver

FM Dummy Antenna

MPX Alignment



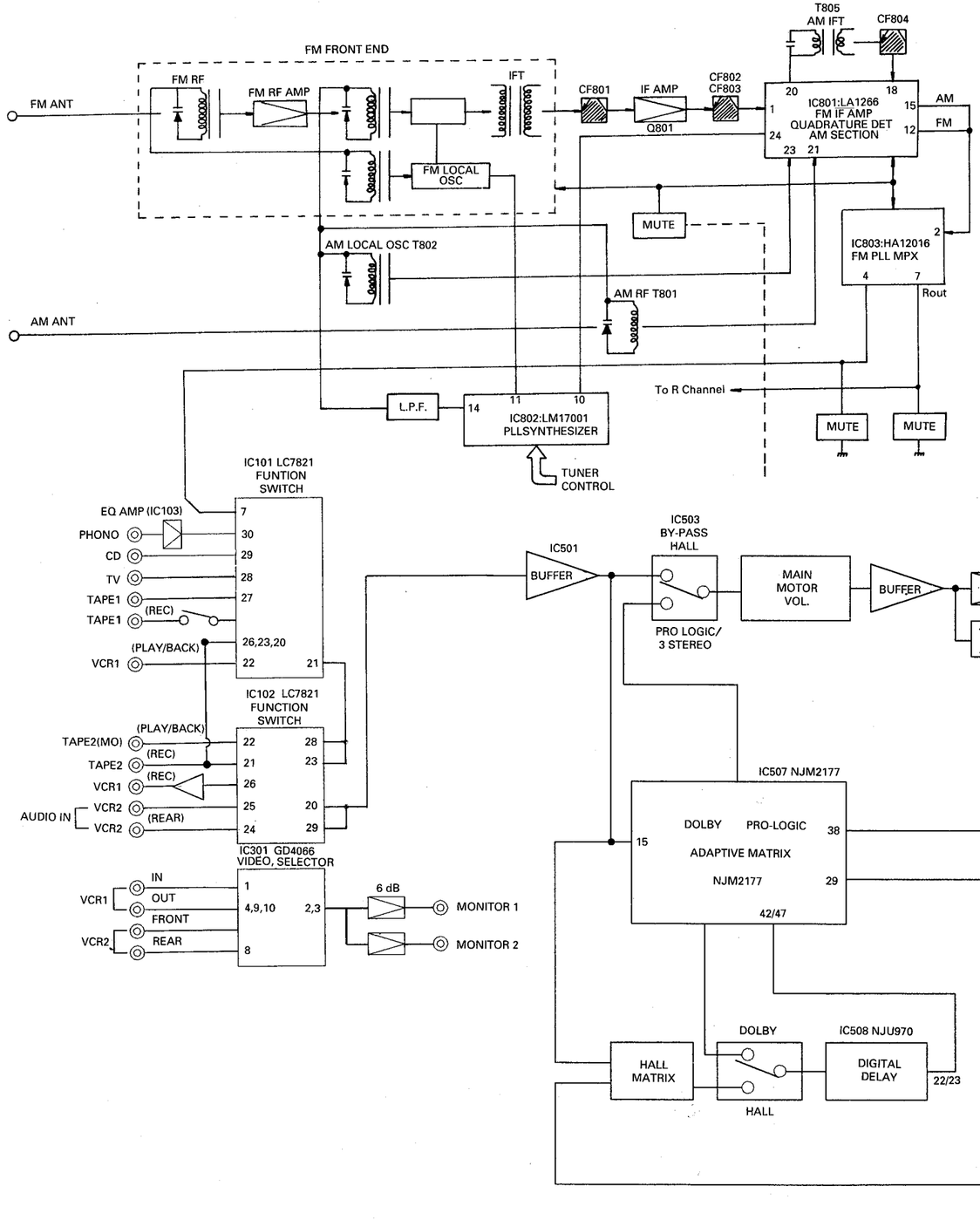
FM RF/IF and MPX Alignment Connection

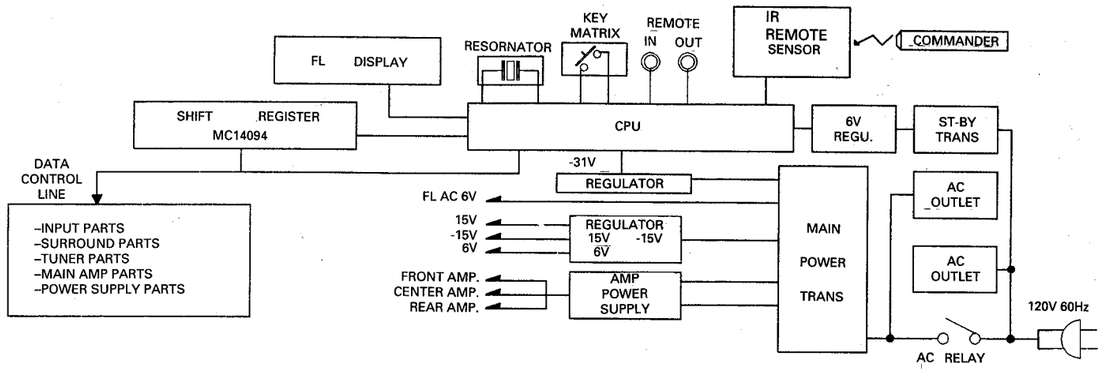
Preparation

1. Switch: Press to FM.
2. Tune for 98 MHz on band.
3. Signal Generator output level: 1000 μV.
4. Deviation: 75 kHz, at 100% modulation of composite signal.
5. Connect Signal Generator to FM antenna terminal through FM dummy antenna (300 Ω).

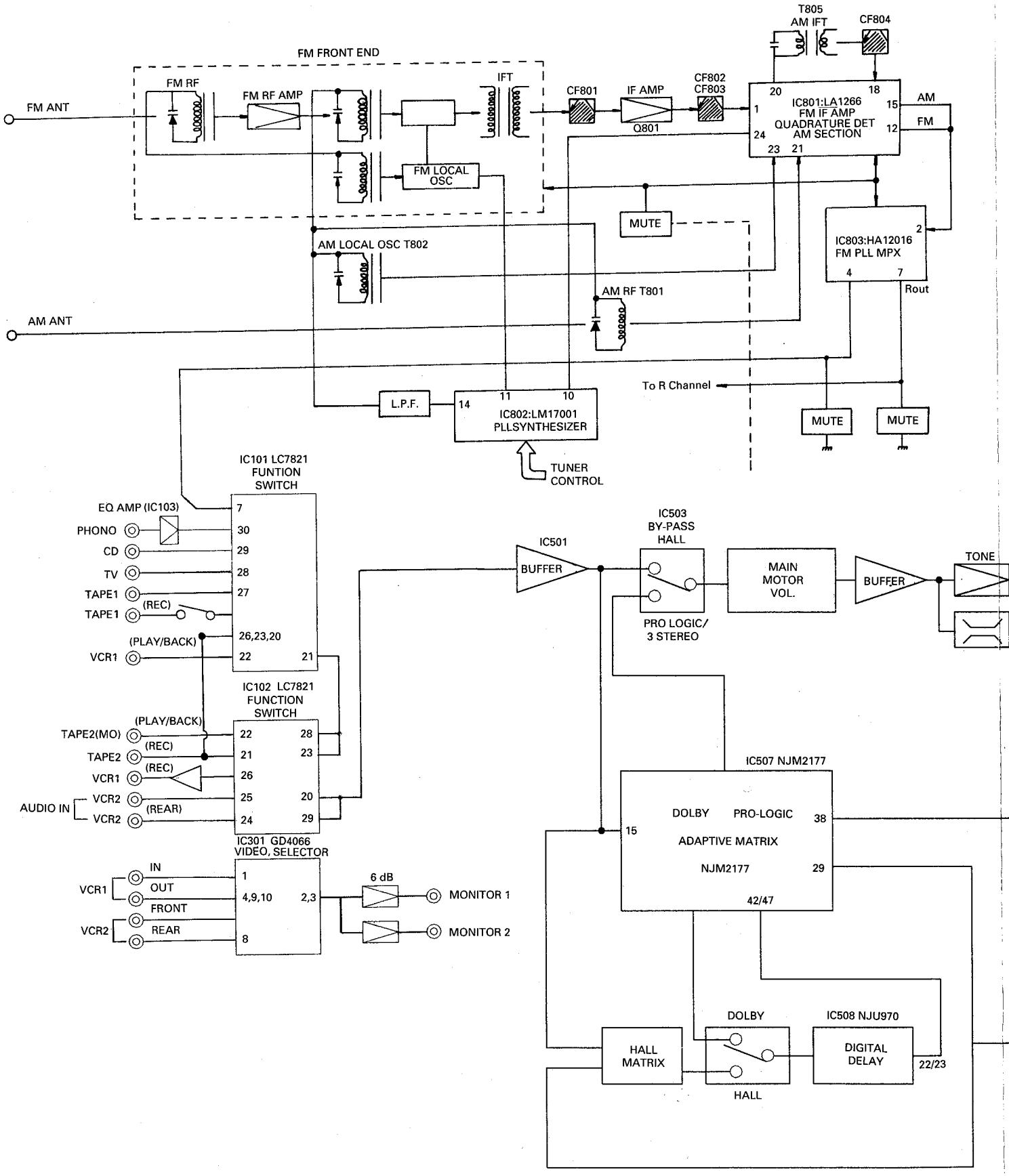
Step	19 kHz Modulation Level	Signal Generator Frequency Setting	Output Indicator Connection	Adjust	Adjust for
1	Pilot off	Carrier only	Frequency counter connect to TP4 (HOT) of PCB and ground	VR803	76kHz
2	8% mod.	Composite to channel 1kHz R	AC voltmeter to TAPE OUT jack of R channel	—	Adjust for about 450mV of audio output
3	8% mod.	Composite to channel 1kHz L	AC voltmeter to TAPE OUT jack of R channel	VR804	AC voltmeter reading should be at least 33 dB below.
4	8% mod.	Composite to channel 1kHz R	AC voltmeter to TAPE OUT jack of L channel	VR804	Same as Step 3.
If you could not obtain −35 dB readings in Steps 3 and 4 (compared with Step 2), readjust VR804 until you obtain −33dB readings for both Steps 3 and 4. Nominal is −43dB.					

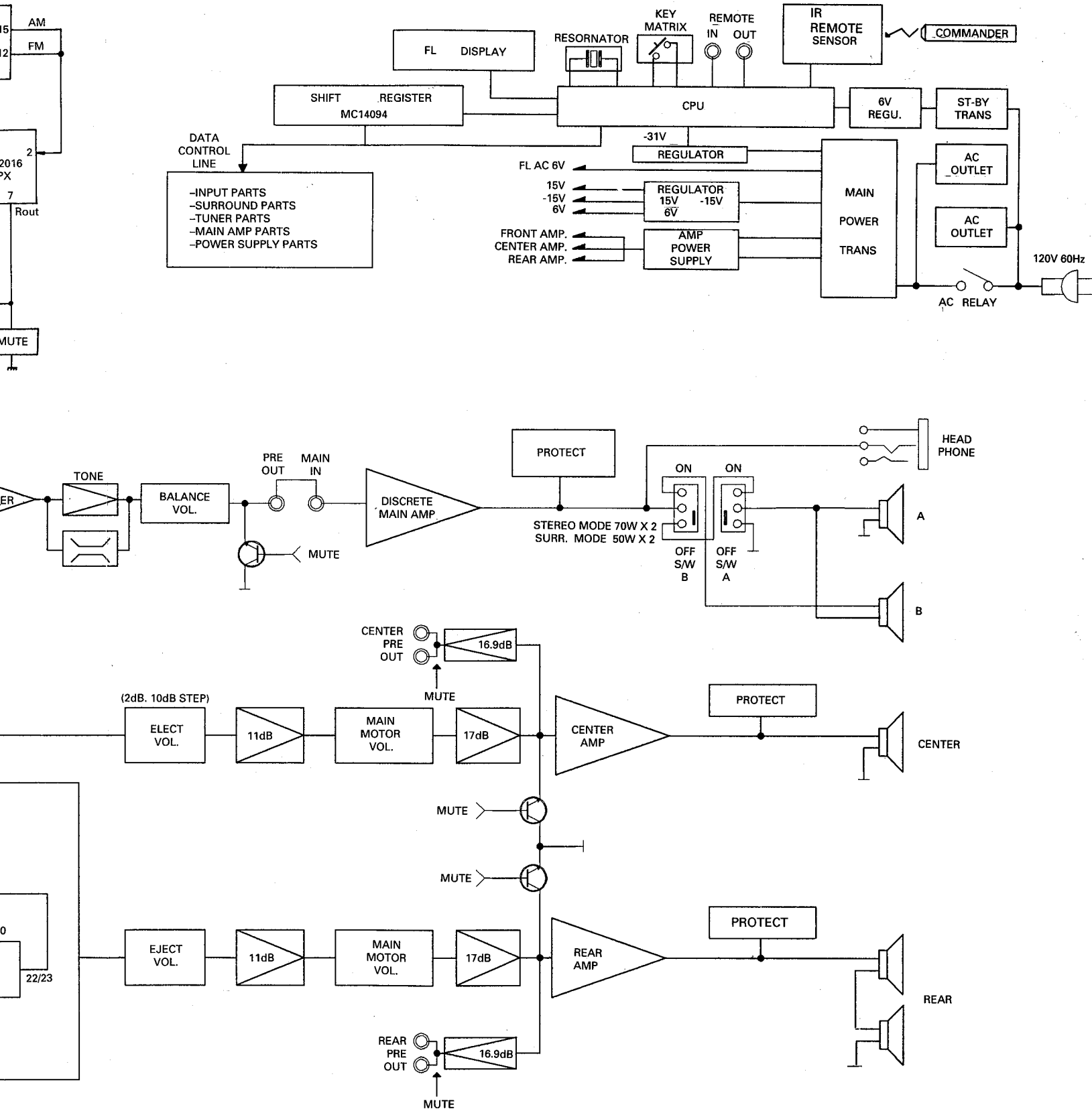
BLOCK DIAGRAM



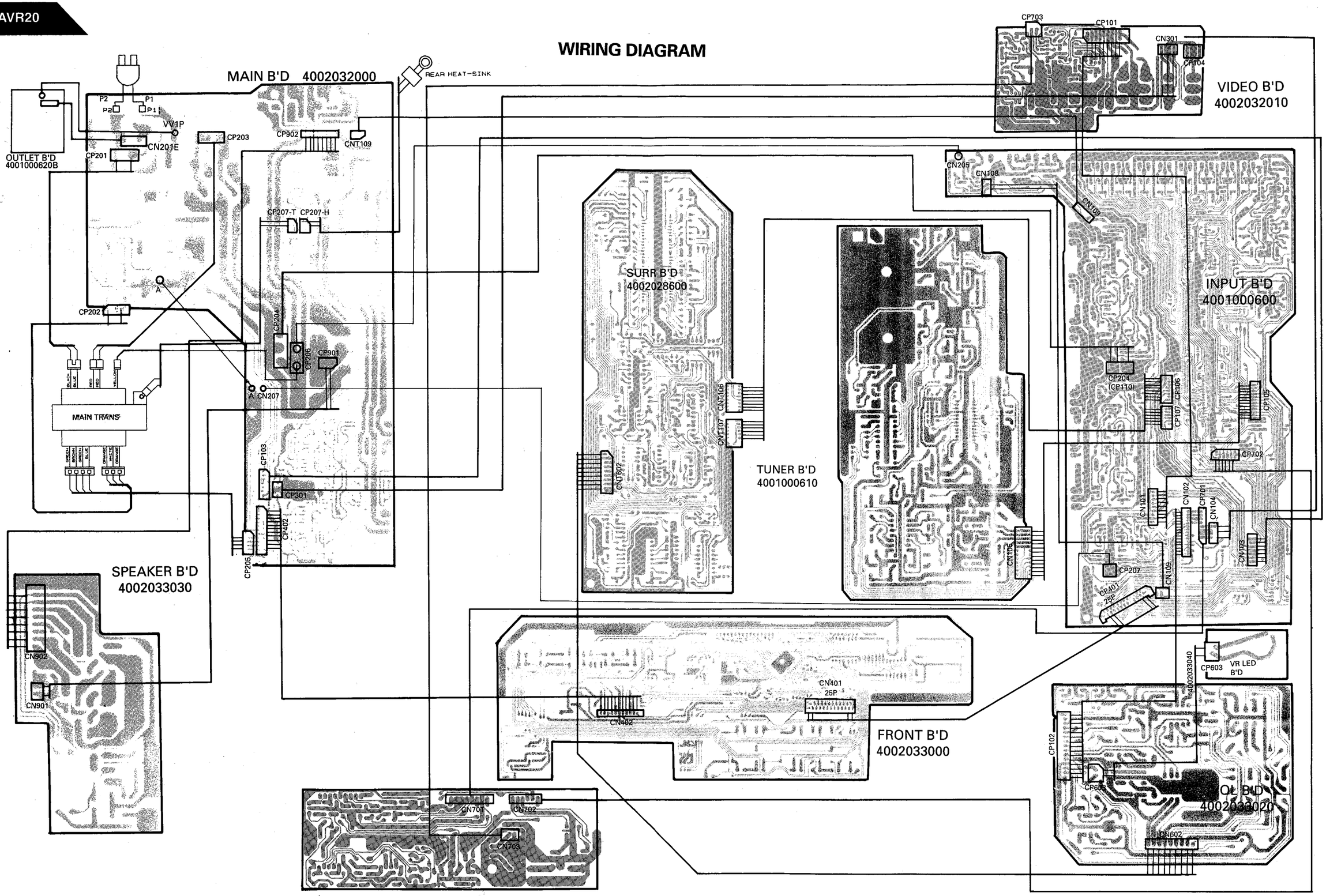


BLOCK DIAGRAM

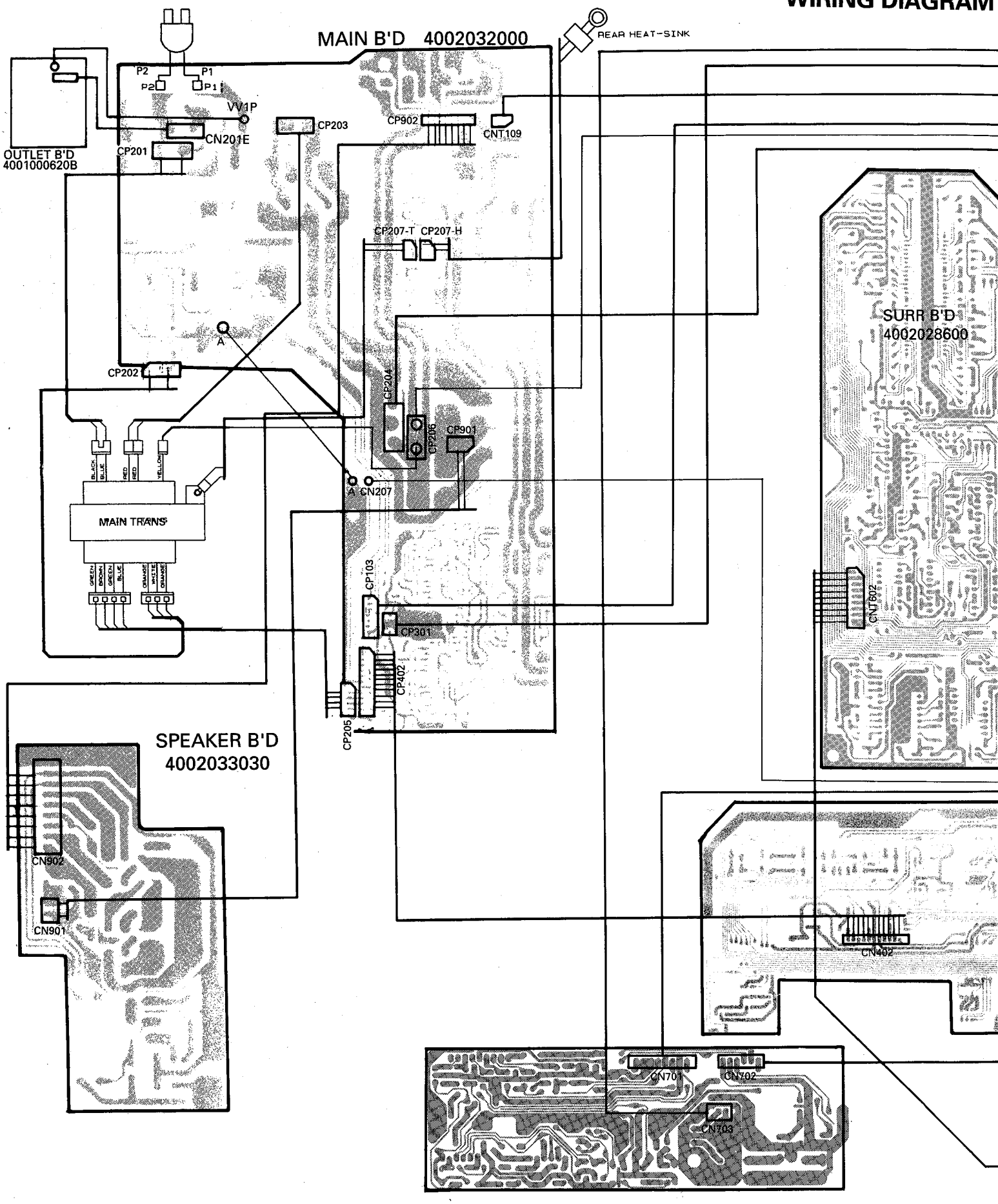



AM
FM
MUTE
FL DISPLAY
RESORNATOR
KEY MATRIX
REMOTE IN OUT
IR REMOTE SENSOR
COMMANDER
SHIFT REGISTER MC14094
CPU
6V REGU.
ST-BY TRANS
DATA CONTROL LINE
-31V
REGULATOR
FL AC 6V
15V
-15V
6V
REGULATOR 15V -15V 6V
-INPUT PARTS
-SURROUND PARTS
-TUNER PARTS
-MAIN AMP PARTS
-POWER SUPPLY PARTS
FRONT AMP.
CENTER AMP.
REAR AMP.
AMP POWER SUPPLY
MAIN POWER TRANS
AC OUTLET
AC OUTLET
120V 60Hz
AC RELAY
TONE
BALANCE VOL.
PRE OUT
MAIN IN
DISCRETE MAIN AMP
MUTE
PROTECT
STEREO MODE 70W X 2
SURR. MODE 50W X 2
ON
ON
OFF S/W B
OFF S/W A
HEAD PHONE
A
B
CENTER PRE OUT
16.9dB
MUTE
(2dB. 10dB STEP)
ELECT VOL.
11dB
MAIN MOTOR VOL.
17dB
CENTER AMP
PROTECT
CENTER
MUTE
MUTE
EJECT VOL.
11dB
MAIN MOTOR VOL.
17dB
REAR AMP
PROTECT
REAR
REAR PRE OUT
16.9dB
MUTE

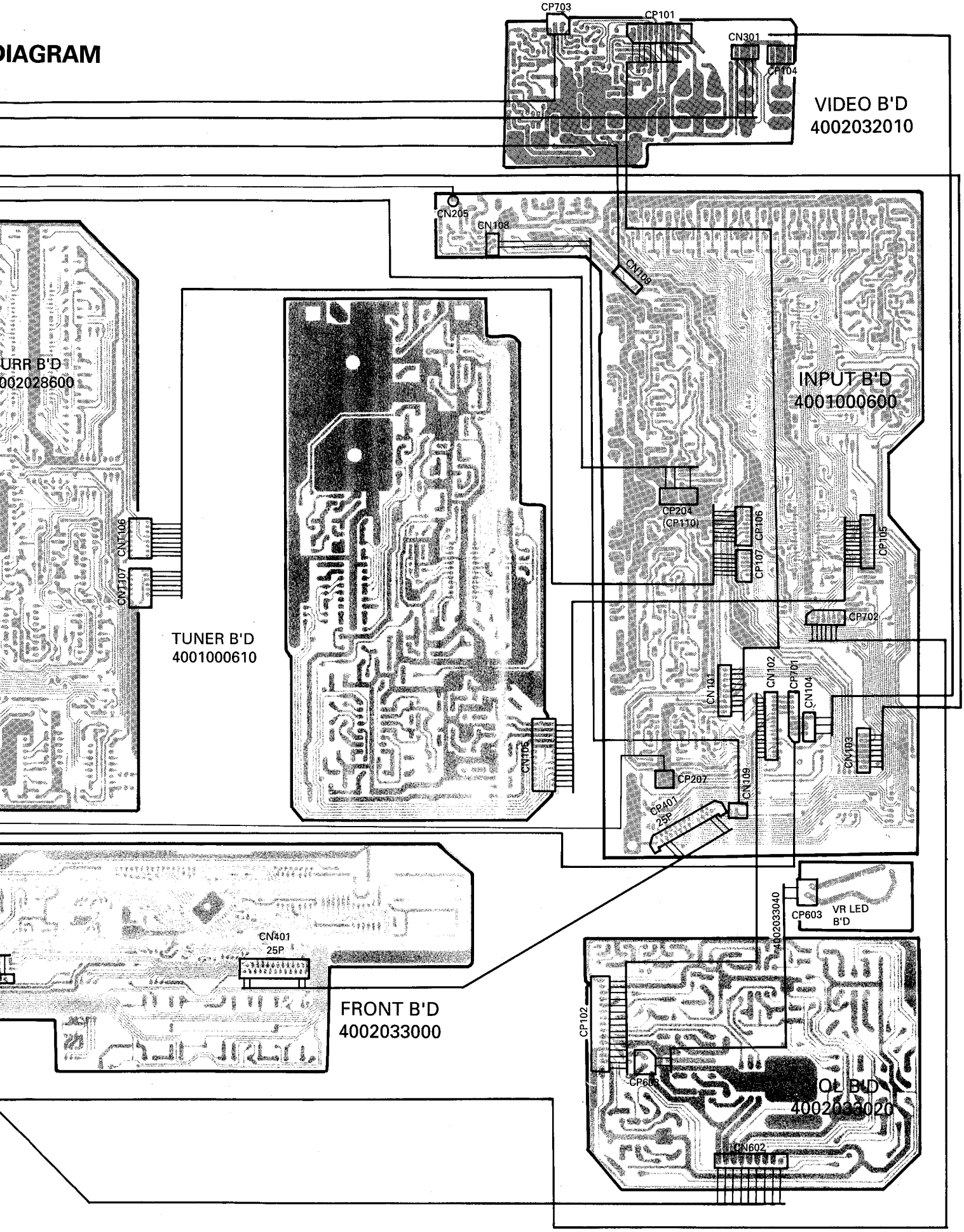
WIRING DIAGRAM



WIRING DIAGRAM



DIAGRAM


CP703
CP101
CN301
CP104
VIDEO B'D
4002032010
CN205
CN108
CN109
INPUT B'D
4001000600
URR B'D
002028600
CN106
CN107
TUNER B'D
4001000610
CN105
CP204
(CP110)
CP106
CP107
CP105
CP702
CN101
CN102
CP701
CN104
CN103
CP207
CN109
CP401
25P
CP603
VR LED
B'D
4802033040
CN401
25P
FRONT B'D
4002033000
CP102
CP601
CN602
4002033020

TROUBLESHOOTING

Symptom	Cause and Remedy
Receiver inoperative (FL indicator does not light)	A) Faulty AC power cord. Replace. B) Defect the power switch. Replace. C) Broken wire in the power transformer. Replace the power transformer. D) Blown fuse. Replace the fuse.
Fuse blows when power is turned on.	A) Defective power transformer. Replace. B) Short the primary or secondary of the transformer circuitry. Repair the short. C) Damaged rectifier (D208 to D211) or damaged transistor (Q216 to Q217). Replace the defective component(s). D) Short circuit in the amplifier circuit. Repair the short.
Power indicator lights but no sound from both channels	A) Speaker switch 1 or 2 defective. Replace the defective switch (es) B) Defect in transistor Q216 L/R, Q217 L/R on the Main Amp Board. Replace the defective component(s).
Speaker A inoperative	A) Speaker switch A defective. Replace
Speaker B inoperative	A) Speaker switch B defective. Replace.
One channel does not work when Volume is at maximum with a test signal applied to the center terminal of Volume control VR5 of the dead channel	A) Defect in transistor Q216 L/R, Q217 L/R on the Main Amp Board Locate and correct the defect. B) Break in copper foil of printed circuit board. Repair the short. C) Short in speaker output terminal. Repair or replace.
Speaker works normally but headphones inoperative	A) Headphone plug does not mate with jack. Replace the plug. B) Defective resistor R901, R902. Replace.
PHONO input inoperative	A) Poor contact in phono input jack. Repair or replace the jack. B) Defective phono switch or IC103. Replace.
LOUDNESS has no effect	A) Defective loudness switch. Replace. B) Defective resistor R601, R602, C601, C602. Replace the defective components(s).
FM inoperative	A) Defective front-end. (FTH3-505H) Replace. B) Defective FM switch. Replace the switch

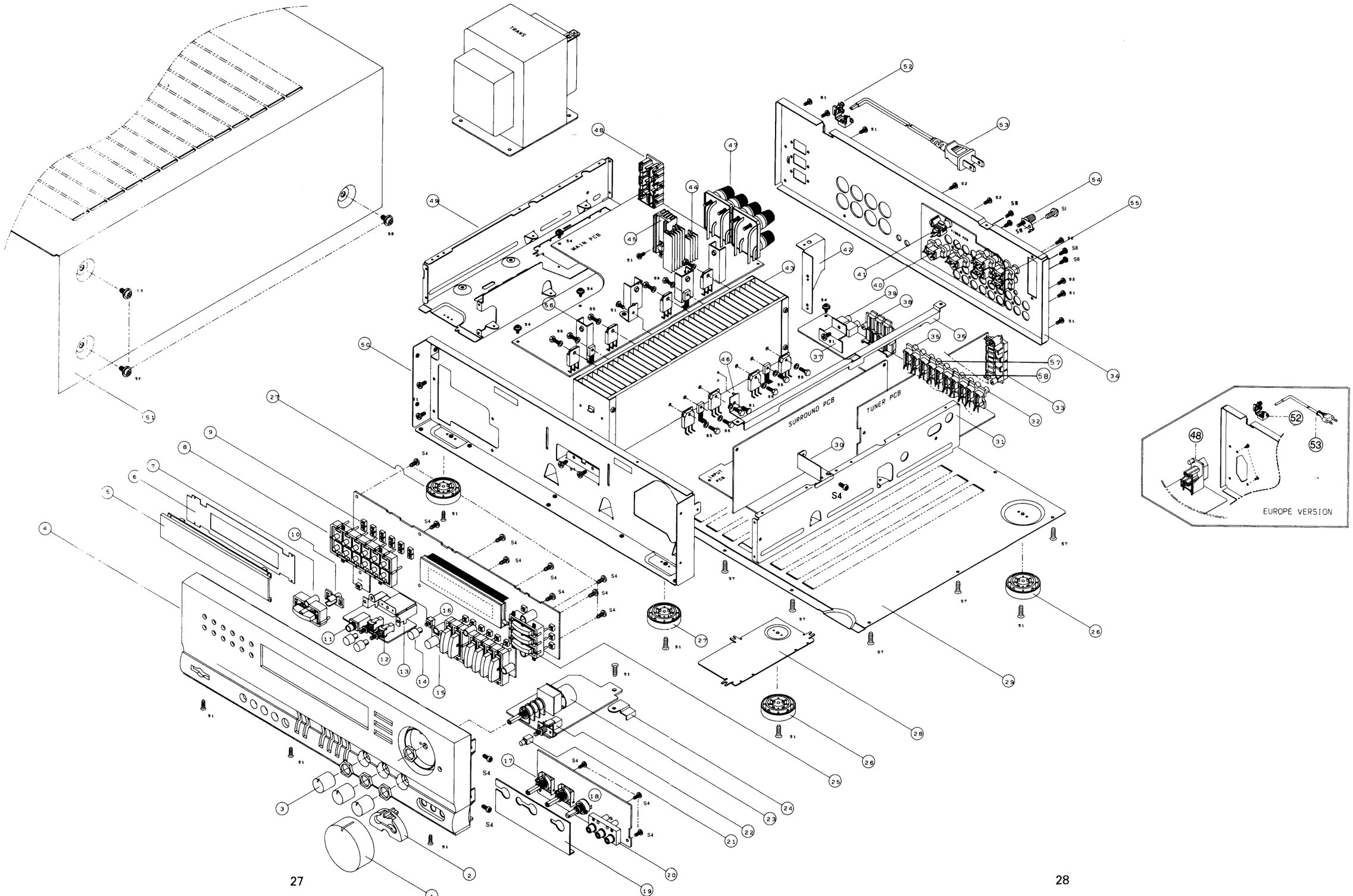
Symptom	Cause and Remedy
FM inoperative	C) Defective transistor Q801, Q805, Q806, IC801, IC803 Replace the defective transistor(s) or IC(s). D) Defective coil T803 or T804 Replace the coil(s). E) Defective lead-in. Repair or replace the lead-in. F) Ceramic filter CF801, CF802, CF803 defective. Replace the defective ceramic filter(s). G) Defective controller circuit component. Replace.
Poor multiplex separation	A) Improper adjustment. Readjust VR803 and VR804. (Refer to MPX Alignment.) B) IC803 defective. Replace. C) Variable resistor VR803 or VR804 defective. Replace the variable resistor(s).
STEREO indicator does not light	A) Defective indicator in FL. Replace. B) Improper adjustment of VR803 of tuner board. Make readjustment. C) Defective IC803 Replace the defective component.
FM volume not sufficient	A) If volume from both L and R channels is not loud enough : Front end Section defective. Faulty IC801, Coil T803, Defective C838 of tuner Board. If sound of one channel is not loud enough: Defective T806, T807
FM Mono has no effect	A) Defective FM MODE switch. Replace.
AM inoperative	A) Damaged IC801 of tuner board. Replace. B) Defective T801, T802, T805 or CF804 of tuner board. Replace the defective component(s). C) Resistor R829, R817 defective. Replace the defective component(s). D) Capacitor C836, C818, C813 defective. Replace the defective capacitor(s). E) Defective AM switch Replace. F) Defective varicap diode VD1, VD2 Replace varicap diods(s). G) Damaged AM loop antenna. Repair or replace. H) Defective controller circuit component. Replace.
Bass control has no effect	A) Variable resistor BASE defective. Replace. B) Defective R709 L/R, R710 L/R, C702 L/R, C708 L/R Replace the defective component(s).

Symptom	Cause and Remedy
Treble control has no effect	A) Variable resistor TREBLE defective. B) Defective R711 L/R, R712 L/R, C709 L/R, C710L/R Replace the defective components(s).
Auto tune inoperative (UP/DOWN)	A) Poor contact in Up/Down key. Repair replace. B) Defective IC401 Replace. C) Defective FL401. Replace. D) Defective tuner circuit component. Replace. E) In case of FM only, improper adjustment of FM front-end. Readjust.
Manual tune inoperative (UP/DOWN) (AM or FM)	A) Poor contact in Up/Down key. Replace. B) Defective IC401. Replace.
Memory setting (keys 1-10) inoperative	A) Poor contact in memory keys 1-10. Replace. B) Poor contact in memory set key. Replace. C) Defective IC401. Replace the defective component.
FL inoperative	A) FL defective. Replace. B) Defective IC401. Replace C) Defective X401. Replace.
Noise Volume control	A) Defective IC603. Replace. B) Defective capacitor C615 or C616. Replace the defective capacitor(s).
Remote Control Unit inoperative	A) Weak Battery. Replace. B) Defective. Replace. C) Defective IC401(CPU Board) or IC01. Replace.

GENERAL UNIT PARTS LIST

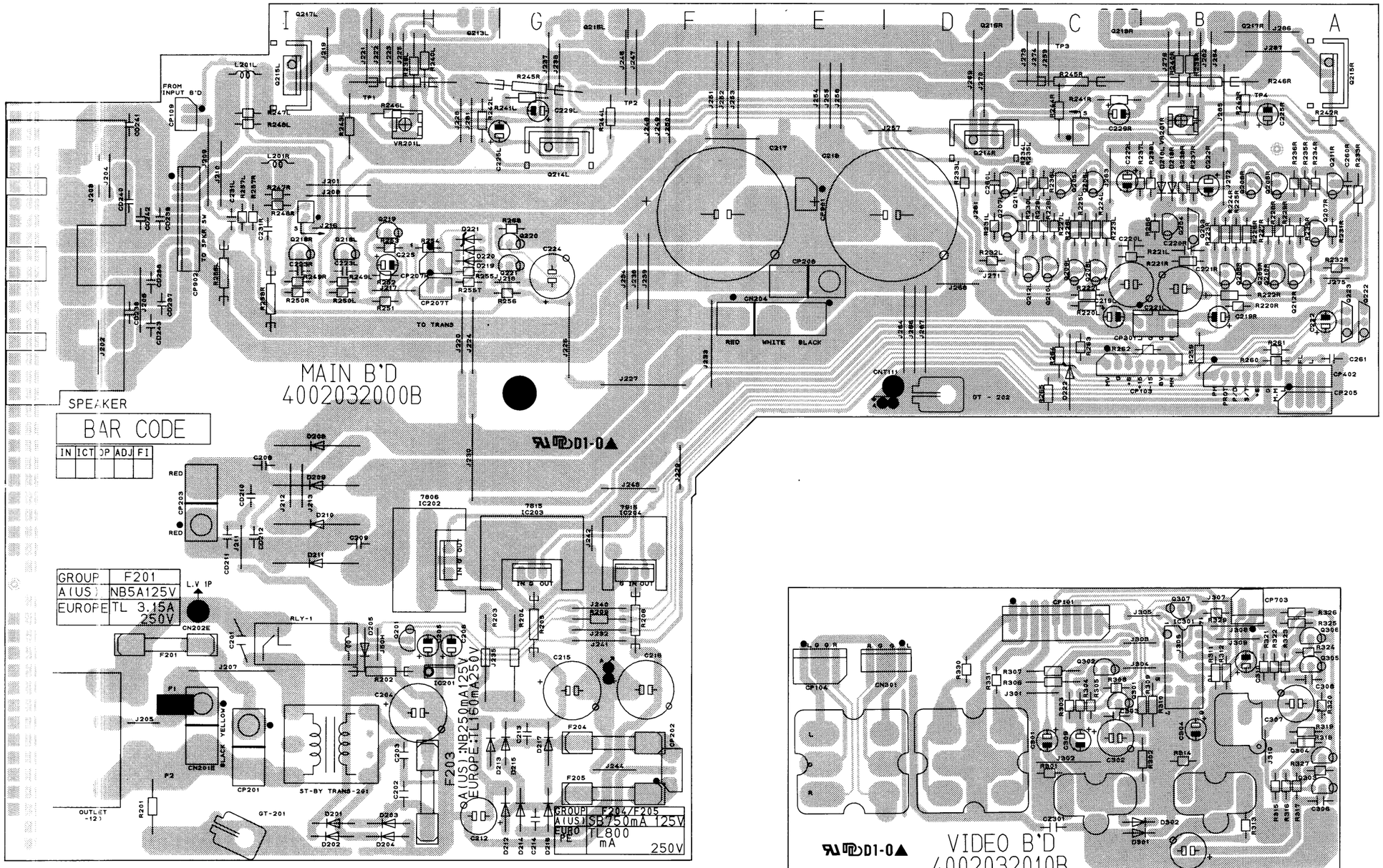
Ref.No.	Mfr. Part No.	Description	Version
1	048543059811	Knob, VR. ABS Black	
2	8555048610	Indicator, Volume	
3	048545124311	Knob, Rotary	
4	048501033811	Panel, Front, ABS, Black	
5	8553019710	Window, Display	
6	048555048511	Filter	
7	048545124011	Button, Power, ABS Black	
8	048543059611	Button, Preset, ABS Black	
9 (SW401-432)	4658003710	Switch, Tact	
10	8555048710	Indicator, Power	
11	4438005020	Jack, Phone	
12	462804310	Switch, Push, ABS Black	
13	6165147910	Shield, Fence	
14	048545124111	Button, Speaker, ABS Black	
15	048543059911	Button, Function, ABS Black	
16 (SW433)	4628054410	Switch, Push, 1 Key, ABS Black	
17	3208049510	VR Bass/Treble	
18	320805210	VR, Balance	
19	6165148410	Shield, Fence, knob	
20	4438109710	Jack, RCA, 3P, VCR	
21	048545124211	Button Loud, ABS Black	
22	4628059610	Switch, Push, Loud	
23	3228019410	VR, Motor	
24	6505138410	Bracket, VR	
25	048543059711	Button, Tuning, ABS Black	
26	6033102510	Foot, ABS, Black	
27	046033102511	Foot, Hot-stampinmg, Gold	
28	6123205210	Frame, Cover	
29	6122418120	Cover Bottom, SECC	
30	6506111710	Bracket, PCB	
31	6122636410	Frame (R)	
32	4438108110	Jack, RAC, 4P	
33	4408108310	Terminal, Antenna	USA/CA
	4408108210	Terminal, Antenna	Eur.
34	046102040611	Chassis, Back, SECC	USA/CA
	046102040611	Chassis, Back, SECC	Eur.
35	4438103210	Jack, RCA, 6P	
36	6123205110	Frame, Center	
37	6505138510	Bracket, Jack	
38	4408107410	Terminal, Speaker, 6P	
39	4438006510	Jack, Multi	
40	4438109310	Jack, RCA, 2P with Ground	
41	4438113810	Jack RCA, 1P, Yello	
42	6506135010	Bracket, Heatsink	
43	7502008510	Heatsink, Power	
44	7505206220	Heatsink, REG. TR	
45	7505206120	Heatsink, REG. TR	
46	6505134910	Bracket, PCB	
47	4408105810	Terminal, Speaker 8P	
48	4448102910	Outlet, AC, CCT1306-0212	USA/CA
49	4448103610	Outlet, AC, YKE31-0090	Eur. Only
50	6121608930	Frame (L)	
51	6122214510	Chassis, Front, SECC ZN	
52	046122022421	Cover, Top	USA/CA
	6518002310	Stopper, Cord	Eur.
53	6518002320	Stopper, Cord	USA/CA
	4408001410	Cord, AC Power	Eur.
54	4408000430	Cord, AC Power	
55	4408103710	System GND	
56	4438103410	Jack, RCA, 4P, AP4-0096	
57	7505210010	Heatsink, REG. TR	
58	4438103110	Terminal, 4P	
P1	4438108010	Jack, RAC, 4P, with Ground	
P1-1	4002032000B	P.C. B Main	
P2	4002032010B	P.C. B Video	
P2-1	4002033000A	P.C. B Front	
P2-2	4002033010A	P.C. B Tone	
P2-3	4002033020A	P.C. B Volume	
P2-4	4002033030A	P.C. B Speaker	
P3	4002033040A	P.C. B Volume/LED	
P4	4002028600	P.C. B Surround	
P4-1	4001000600B	P.C. B Input	
P4-2	4001000610B	P.C. B Tuner	
P5	4001000620B	P.C. B Outlet	
S1	4008500200	P.C. B Commander	
S2	8109230083	Screw #2BTC 3 x 8 (B)	
S3	8119130103	Screw #1PTC 3 x 10 (B)	
S4	8109230081	Screw #2BTC 3 x 8 (Y)	
S5	8159230081	Screw #2WPTC 3 x 8 (Y)	
S6	8099130121	Screw #HEX MSPW 3 x 12	
S7	8159440083	Screw WSAM 4 x 8 (B)	
S8	8109230063	Screw #2BTC 3 x 8 (B)	
	8155000710	Screw Ground	
	2828009981	Power Transformer, 120V, 60 Hz	USA/CA
	2828009991	Power Transformer, 230V, 60 Hz	Eur.

EXPLODED VIEW

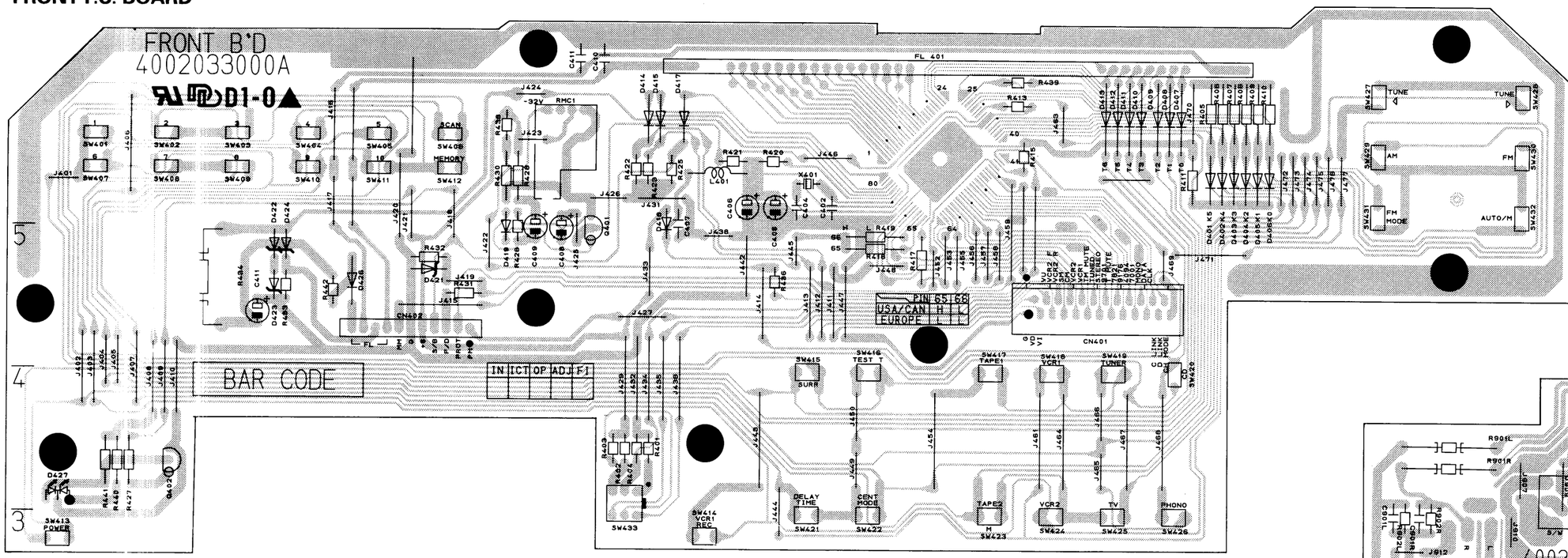


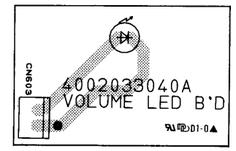
PRINTED CIRCUIT BOARDS

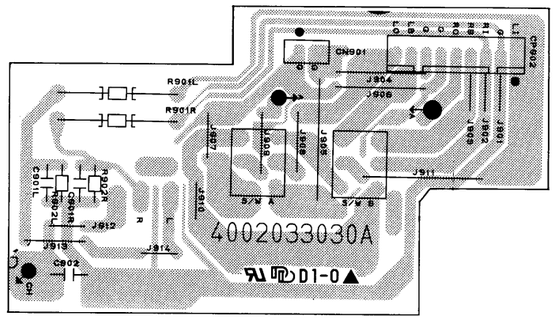
MAIN P.C. BOARD

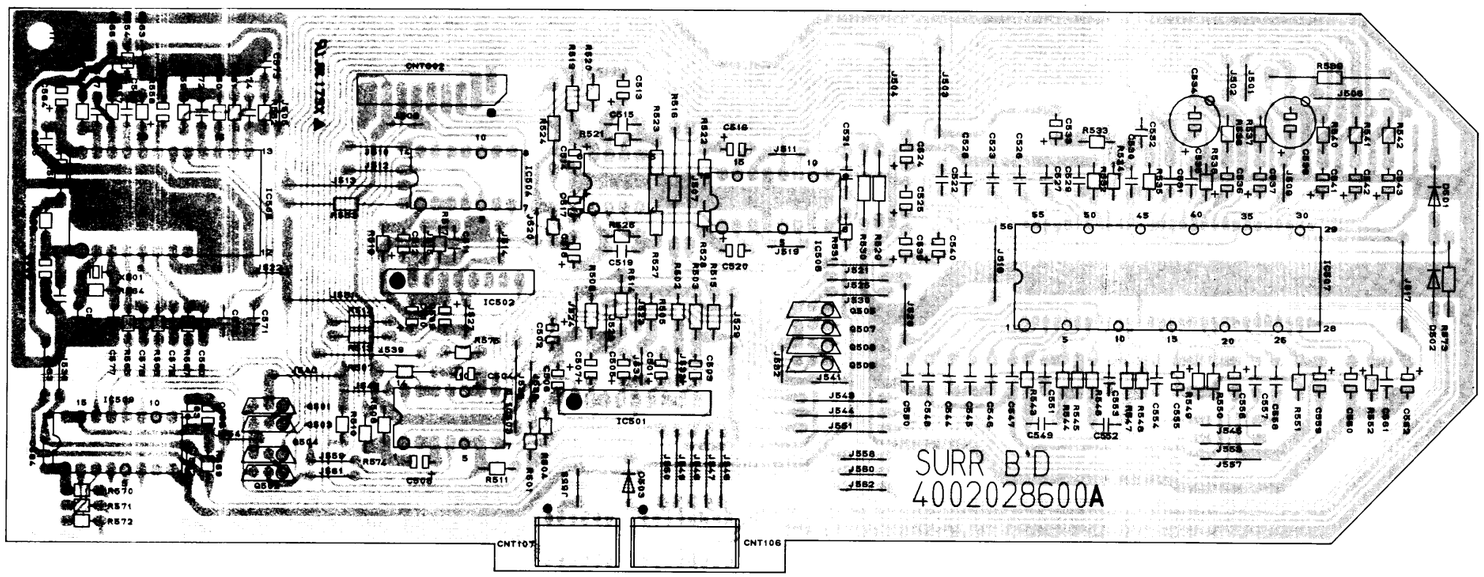


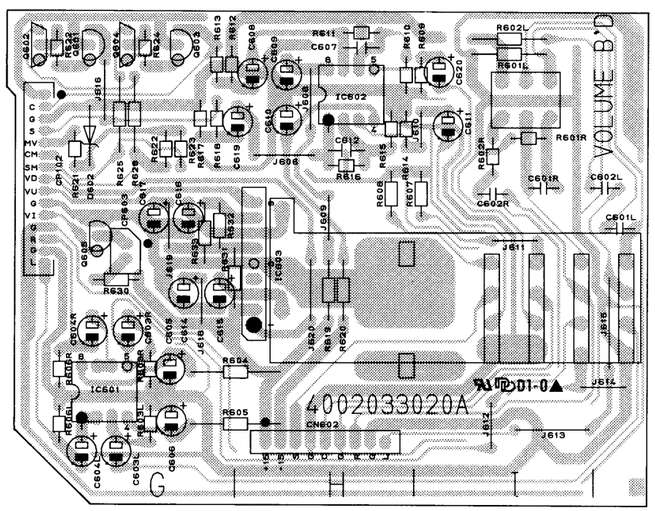
FRONT P.C. BOARD



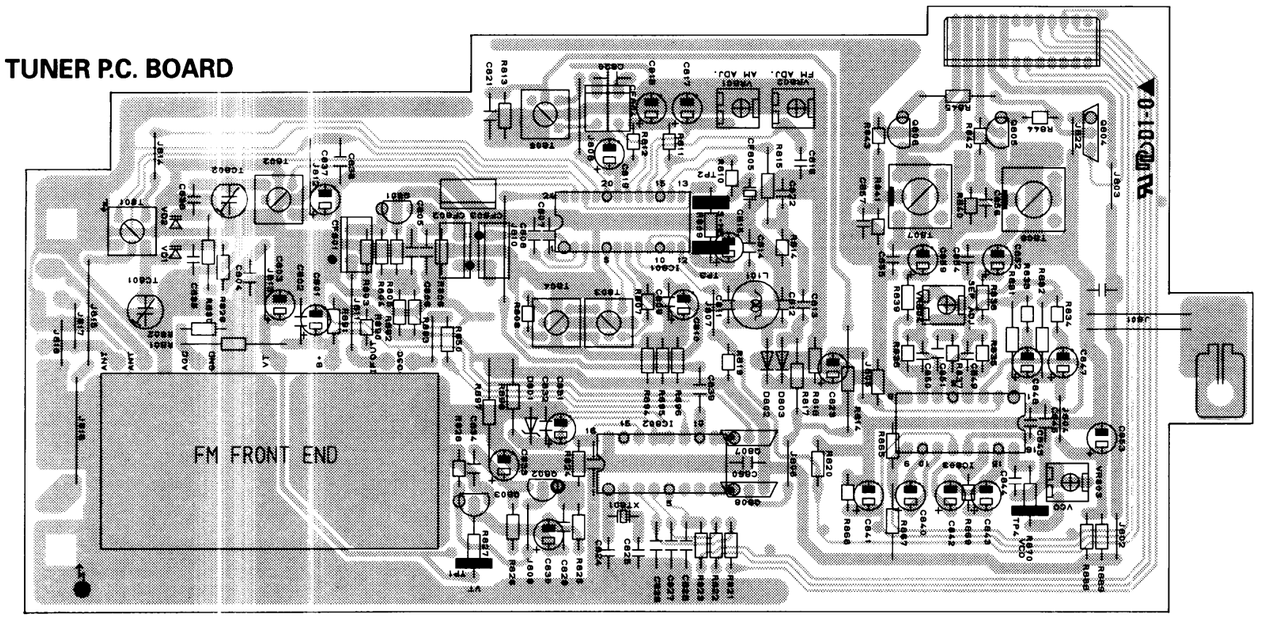


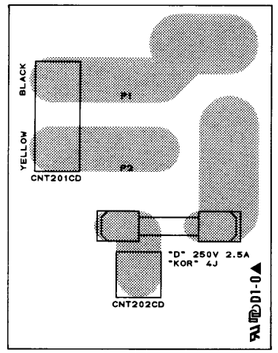


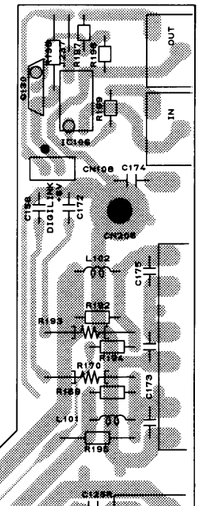


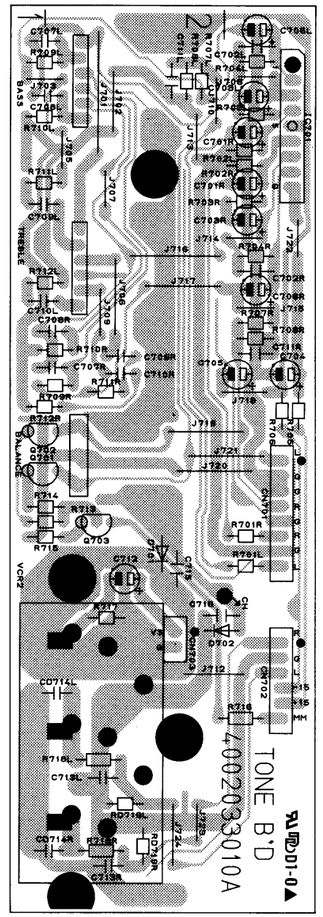


TUNER P.C. BOARD

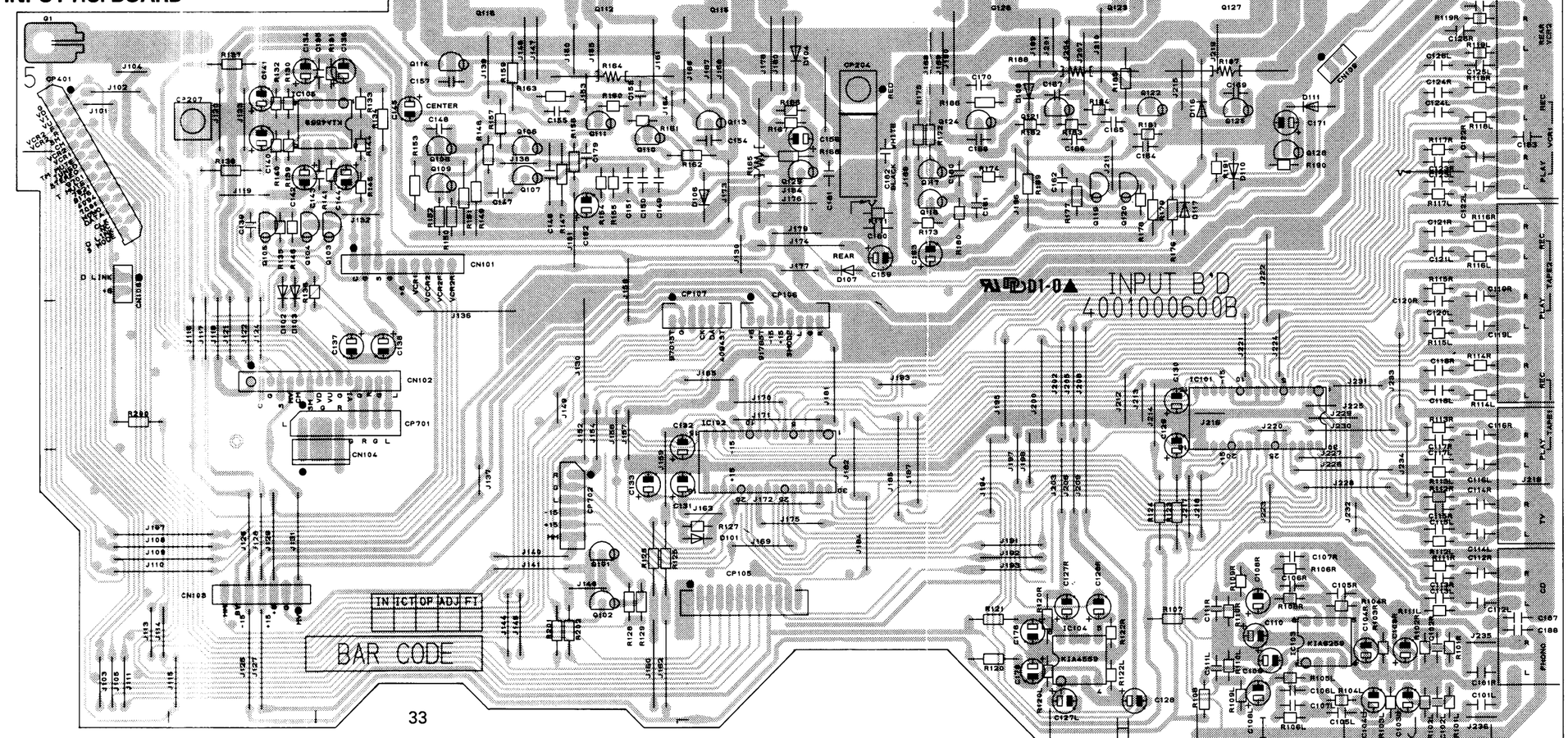








INPUT P.C. BOARD



ELECTRICAL PARTS LIST

Ref. No.	Mfr. Part No.	Description			Version
	057502000149	**ASSEMBLY HEATSINK**			
42	6505135010	Bracket, Heatsink			
43	7502008510	Heatsink, Power			
46	6505134910	Bracket, PCB			
Q112	2008622110	2SC4137, Bias NPN			
Q115	2028407109	2SD7180/KTD718, NPN			
Q116	2028107106	2SB688/KTB688, PNP			
Q123	2008622110	2SC4137, Bias NPN			
Q126	2028407109	2SD7180/KTD718, NPN			
Q127	2028107106	2SB688/KTB688, PNP			
Q213L/R	2008622110	2SC4137, Bias NPN			
Q216L/R	2028307100	2SC3181N-O			
Q217L/R	2028007100	2SA1264N-O			
S1	8109230083	Screw #2BTC 3X8 (B)			
S5	8099130121	Screw #HEX MSPW 3X12			
		END OF ASSEMBLY HEATSINK			
P1	**054002007504**	**ASS'Y P.C.B MAIN FOR USA/CA**			
P1	**054002007951**	**ASS'Y P.C.B MAIN FOR EUROPE**			
		CAPACITORS			
C201	3549472407	Ceramic Tubular	0.0047 uF	400 V K	
C202/203	3679473120	Mylar	0.047 uF	100 V J	
C204	3409347149	Electric SG	470 uF	25 V M	
C206	3479222071	Electrolytic SA	22 uF	50 V M	
C208/209	3679104257	Mylar	0.1 uF	250 V J	
C212	3479310161	Electric SG	100 uF	35 V M	
C213/214	3679473120	Mylar	0.047 uF	100 V J	
C215/216	3409310269	Electric SG	1000 uF	35 V M	
C217/218	3419582235	Electrolytic HM	8200 uF	63 V M	
C219L/R	3479347031	Electrolytic SA	47 uF	16 V M	
C220L/R	3479210171	Electrolytic SA	100 uF	50 V J	
C221L/R	3479347111	Electric SG	470 uF	6.3 V M	
C222	3479210071	Electrolytic SA	10 uF	50 V M	
C222L/R	3479210971	Electrolytic SA	1 uF	50 V M	
C223L/R	3679683120	Mylar	0.068 uF	100 V J	
C224	3479347111	Electric SG	470 uF	6.3 V M	
C225	3479210071	Electrolytic SA	10 uF	50 V M	
C225L/R	3479210071	Electrolytic SA	10 uF	50 V M	
C229L/R	3479247971	Electrolytic SA	4.7 uF	50 V M	
C231L/R	3679473120	Mylar	0.047 uF	100 V J	
C260L/R	3579309030	Ceramic Disc	5 pF	50 V K	
CD237-239	3519222935	Ceramic Tubular	0.0022 uF	50 V K	Eur.
CD242	3519222935	Ceramic Tubular	0.0022 uF	50 V K	Eur.
		CONNECTORS			
CN204	4358800353	Lead Ass'y 3P 530mm			
CN301	436204608331	Lead Ass'y 4P, Shield, 600 mm			
CP103	4428505410	Wafer 7P			
CP104	4428513440	Wafer 4P, Angle			
CP109	4428508210	Wafer 2P			
CP201	4428525780	Wafer 2P, AC			
CP202	4428505710	Wafer 3P			
CP203	4428525780	Wafer 2P, AC			
CP205	4428505610	Wafer 4P			
CP206	4428525780	Wafer 2P, AC			
CP207H	4428508210	Wafer 2P			
CP207T	4428508210	Wafer 2P			
CP301	4428517710	Wafer 4P			
CP402	4428510710	Wafer 11P			
CP901	4428508210	Wafer 2P			
CP902	4428518210	Wafer 9P			
		DIODES			
D201-205	2258100135	1N4002, Rectifier			
D207	2258100135	1N4002, Rectifier			
D208-211	2058100138	PX6A03, Rectifier			
D212-217	2258100135	1N4002, Rectifier			
D218L/R	2058322101	1N4148M			
D219/220	2058322101	1N4148M			
D221	2258599107	Zener, UZ 9.1 BSC			
D222	2258599102	Zener, UZ 4.3 BSB			
		ICs			
IC201/202	2168601110	GL7806			
IC203	2168601110	GL7815			
IC204	2168601111	GL7915			
		TRANSISTORS			
Q201	2208606104	KTC1815Y/BKTC3198Y,NPN			
Q203	2208622106	DTC114YS, NPN			
Q204L/R	2208206105	KTA1015Y/BKTA1266Y, PNP			
Q205L/R	2208206104	KTA970/KTA1268			
Q207L/R	2208606108	KTC2240/BKTC3200, NPN			
Q208L/R	2208206104	KTA970/KTA1268			
Q209L/R	2208206104	KTA970/KTA1268			
Q210L/R	2208606108	KTC2240/BKTC3200, NPN			
Q211L/R	2208206102	BKTA949/KTA1024, PNP			
Q212L/R	2208606107	KTC2229/KTC3206, NPN			
Q214L/R	2008602102	KSC2690A-Y, NPN			
Q215L/R	2008202101	KSA1220A-Y, PNP			
Q218L/R	2208606104	KTC1815Y/BKTC3198Y,NPN			
Q219	2208206105	KTA1015Y/BKTA1266Y, PNP			
Q220/221	2208606104	KTC1815Y/BKTC3198Y,NPN			
Q222/223	2208622106	DTC114YS, NPN			
		RESISTORS			
R201	3009335373	Carbon Film	3.3 Mohm	1/2W J	
R202	3029479472	Metal Film	4.7 ohm	1 W J	
R203/204	3029220572	Metal Film	22 ohm	2 W J	
R205	3029100472	Metal Film	10 ohm	1 W J	
R206	3029479472	Metal Film	4.7 ohm	1 W J	
R209	3069332970	Carbon Film	3.3 kohm	1/5W J	
R220L/R	3069331970	Carbon Film	330 ohm	1/5W J	
R221L/R	3069333970	Carbon Film	33 kohm	1/5W J	
R222L/R	3069102970	Carbon Film	1 kohm	1/5W J	
R223L/R	3069152970	Carbon Film	1.5 kohm	1/5W J	
R224L/R	3069391970	Carbon Film	390 ohm	1/5W J	
R225L/R	3069152970	Carbon Film	1.5 kohm	1/5W J	
R226L/R	3069391970	Carbon Film	390 ohm	1/5W J	
R227L/R	3069561970	Carbon Film	560 ohm	1/5W J	
R228L/R	3069561970	Carbon Film	560 ohm	1/5W J	
R229L/R	3069820970	Carbon Film	82 ohm	1/5W J	
R230L/R	3069561970	Carbon Film	560 ohm	1/5W J	
R231L/R	3069561970	Carbon Film	560 ohm	1/5W J	
R232L/R	3069223970	Carbon Film	22 kohm	1/5W J	
R233L/R	3069223970	Carbon Film	22 kohm	1/5W J	
R234L/R	3069820970	Carbon Film	82 ohm	1/5W J	
R235L/R	3069561970	Carbon Film	560 ohm	1/5W J	
R236L/R	3069271970	Carbon Film	270 ohm	1/5W J	
R237L/R	3069103970	Carbon Film	10 kohm	1/5W J	
R238L/R	3069333970	Carbon Film	33 kohm	1/5W J	
R239L/R	3069360970	Carbon Film	360 ohm	1/5W J	
R240L/R	3069122970	Carbon Film	1.2 kohm	1/5W J	
R241L/R	3069820970	Carbon Film	82 ohm	1/5W J	
R242L/R	3069333970	Carbon Film	33 kohm	1/5W J	
R243L/R	3069152970	Carbon Film	1.5 kohm	1/5W J	
R244L/R	3069182970	Carbon Film	1.8 kohm	1/5W J	
R245L/R	3059278782	Cement	0.27 ohm	5 W K	
R246L/R	3059278782	Cement	0.27 ohm	5 W K	
R247L/R	3069220970	Carbon Film	22 ohm	1/5W J	
R248L/R	3069220970	Carbon Film	22 ohm	1/5W J	
R249L/R	3069911970	Carbon Film	910 ohm	1/5W J	
R250L/R	3069682970	Carbon Film	6.8 kohm	1/5W J	
R251L/R	3069683970	Carbon Film	68 kohm	1/5W J	
R252L/R	3069104970	Carbon Film	100 kohm	1/5W J	
R253L/R	3069332970	Carbon Film	3.3 kohm	1/5W J	
R254L/R	3069102970	Carbon Film	1 kohm	1/5W J	
R255T	3069682970	Carbon Film	6.8 kohm	1/5W J	
R256	3069103970	Carbon Film	10 kohm	1/5W J	
R257L/R	3069243970	Carbon Film	24 kohm	1/5W J	
R258L/R	3029100472	Metal Film	10 ohm	1 W J	

Ref. No.	Mfr. Part No.	Description			Version
R259	3069103970	Carbon Film	10 kohm	1/5W J	
R260	3069103970	Carbon Film	10 kohm	1/5W J	
R261	3069103970	Carbon Film	10 kohm	1/5W J	
R262	3069102970	Carbon Film	1 kohm	1/5W J	
R263	3069242970	Carbon Film	2.4 kohm	1/5W J	
R264	3069223970	Carbon Film	22 kohm	1/5W J	
R265	3069153970	Carbon Film	15 kohm	1/5W J	
R266	3069154970	Carbon Film	150 kohm	1/5W J	
		MISCELLANEOUS			
44	7505206220	Heatsink, REG. TR			
45	7505206120	Heatsink, REG. TR			
47	4408105810	Terminal, Speaker 8P			
48	4448102910	Oulet, AC, CCT1306-0212			USA/CA
56	7505210010	Heatsink, REG. TR			
J235/236	2648601470	Coil, 50 uH			Eur.
L201L/R	2648001010	Inductor 0.5 uH			
F201	5508203021	Fuse, NB 125V 5A			USA/CA
F201	5508302735	Fuse, 5T 3.15 A, 250 V, SEMKO			Eur.
F203	5508201221	Fuse, NB 125V 250mA			USA/CA
F203	5508301034	Fuse, TL 160 mA, 250 V, SEMKO			Eur.
F204/205	5508101821	Fuse, NB 125V 750mA			USA/CA
F204/205	5508301934	Fuse, TL 800 mA, 250 V, SEMKO			Eur.
GT201/202	4235007310	Ground Plate			
RLY-1	5528001620	OEG OST-S-112DM, Relay			
S3	8109230081	Screw #2BTC 3X8 (Y)			
TRANS201	2828096001	Transfomer, Standby			
VR201	3248322120	Semi, 220(B)			
		END OF ASS'Y P.C.B MAIN			
P1-1	**054002007506**	**ASS'Y P.C.B VIDEO**			
		CAPACITORS			
C301	3479233041	Electric SG	33 uF	25 V M	
C302	3479347121	Electric SG	470 uF	10 V M	
C303	3579471130	Ceramic Disc	470 pF	50 V K	
C304	3479233041	Electric SG	33 uF	25 V M	
C305	3479347121	Electric SG	470 uF	10 V M	
C306	3519010935	Ceramic Tubular	1 pF	50 V K	
C307	3479347121	Electric SG	470 uF	10 V M	
C308	3519010935	Ceramic Tubular	1 pF	50 V K	
C309	3479310121	Electric SG	100 uF	10 V M	
C311	3519104935	Ceramic Tubular	0.1 uF	50 V K	
CZ301	3519104935	Ceramic Tubular	0.1 uF	50 V K	
		CONNECTORS			
CN301	436204608331	Lead Ass'y 4P			
CP101	4428513490	Wafer 9P, Angle			
CP104	4428513440	Wafer 4P, Angle			
CP703	4428513420	Wafer 2P, Angle			
		DIODES			
D301/302	2058322101	1N4148M			
		IC			
IC301	2138001101	GD4066, Switching			
		TRANSISTORS			
Q301	2208206105	KTA1015Y/BKTA1266Y, PNP			
Q302	2208606104	KTC1815Y/BKTC3198Y,NPN			
Q303	2208206105	KTA1015Y/BKTA1266Y, PNP			
Q304	2208606104	KTC1815Y/BKTC3198Y,NPN			
Q305	2208206105	KTA1015Y/BKTA1266Y, PNP			
Q306	2208606104	KTC1815Y/BKTC3198Y,NPN			
Q307	2218207106	FET, 2SK117Y			
		RESISTORS			
R301/302	3069750970	Carbon Film	75 ohm	1/5W J	
R303	3069123970	Carbon Film	12 kohm	1/5W J	
R304	3069122970	Carbon Film	1.2 kohm	1/5W J	
R305	3069181970	Carbon Film	180 ohm	1/5W J	

Ref. No.	Mfr. Part No.	Description			Version
R306	3069151970	Carbon Film	150 ohm	1/5W J	
R307	3069822970	Carbon Film	8.2 kohm	1/5W J	
R308	3069122970	Carbon Film	1.2 kohm	1/5W J	
R309-312	3069104970	Carbon Film	100 kohm	1/5W J	
R313/314	3069750970	Carbon Film	75 ohm	1/5W J	
R315	3069123970	Carbon Film	12 kohm	1/5W J	
R316	3069122970	Carbon Film	1.2 kohm	1/5W J	
R317	3069181970	Carbon Film	180 ohm	1/5W J	
R318	3069151970	Carbon Film	150 ohm	1/5W J	
R319	3069822970	Carbon Film	8.2 kohm	1/5W J	
R320	3069750970	Carbon Film	75 ohm	1/5W J	
R321	3069123970	Carbon Film	12 kohm	1/5W J	
R322	3069122970	Carbon Film	1.2 kohm	1/5W J	
R323	3069181970	Carbon Film	180 ohm	1/5W J	
R324	3069122970	Carbon Film	1.2 kohm	1/5W J	
R325	3069151970	Carbon Film	150 ohm	1/5W J	
R326	3069822970	Carbon Film	8.2 kohm	1/5W J	
R327	3069122970	Carbon Film	1.2 kohm	1/5W J	
R329	3069105970	Carbon Film	1 Mohm	1/5W J	
R330/331	3069471970	Carbon Film	470 ohm	1/5W J	
		MISCELLANEOUS			
40	4438109310	Jack, RCA, 2P with Ground			
41	4438113810	Jack RCA, 1P, Yellow			
55	4438103410	Jack, RCA, 4P, AP4-0096			
		END OF ASS'Y P.C.B VIDEO			
P2	**054002007510**	**ASS'Y P.C.B FRONT**			
		CAPACITORS			
C402	3528560210	Ceramic CH	56 pF	50 V K	
C404	3528560210	Ceramic CH	56 pF	50 V K	
C405	3409247022	Electric SS	47 uF	10 V M	
C406	3449347314	Electrolytic, Backup	0.047 uF	5.5 V K	
C407	3679104120	Mylar	0.1 uF	100 V J	
C408	3479210971	Electrolytic SA	1 uF	50 V M	
C409	3479210071	Electrolytic SA	10 uF	50 V M	
C410	3679473120	Mylar	0.047 uF	100 V J	
C411	3479310171	Electric SG	100 uF	50 V M	
C411	3679473120	Mylar	0.047 uF	100 V J	
		CONNECTORS			
CN401	4428525826	Wafer 25P, 52575-2530			
CN402	436111203331	Lead Ass'y 11P, 200 mm			
		DIODES			
D401-415	2058322101	1N4148M			
D417-419	2058322101	1N4148M			
D421	2258599102	Zener, UZ 4.3 BSB			
D422/423	2258599117	Zener, UZ 16.0 BSD			
D424	2258599107	Zener, UZ 9.1 BSC			
D426	2258100135	1N4002, Rectifier			
D427	2308222302	LED, SPR54MVW3, RED/GREEN			
		IC			
IC401	2138322181	CPU, CXP50116-568Q			
		TRANSISTORS			
Q401/402	2208606104	KTC1815Y/BKTC3198Y,NPN			
		RESISTORS			
R401-403	3069103970	Carbon Film	10 kohm	1/5W J	
R404	3069223970	Carbon Film	22 kohm	1/5W J	
R405-410	3069473970	Carbon Film	47 kohm	1/5W J	
R411	3069224970	Carbon Film	220 kohm	1/5W J	
R413	3069334970	Carbon Film	330 kohm	1/5W J	
R415	3069103970	Carbon Film	10 kohm	1/5W J	
R417-420	3069103970	Carbon Film	10 kohm	1/5W J	
R421	3069104970	Carbon Film	100 kohm	1/5W J	
R422/423	3069473970	Carbon Film	47 kohm	1/5W J	

Ref. No.	Mfr. Part No.	Description		Version
R425	3069473970	Carbon Film	47 kohm	1/5W J
R426	3069103970	Carbon Film	10 kohm	1/5W J
R427	3069102970	Carbon Film	1 kohm	1/5W J
R428	3069331970	Carbon Film	330 ohm	1/5W J
R430	3069473970	Carbon Film	47 kohm	1/5W J
R431/432	3069472970	Carbon Film	4.7 kohm	1/5W J
R433	3069153970	Carbon Film	15 kohm	1/5W J
R434	3029391472	Metal Film	390 ohm	1 W J
R436	3069331970	Carbon Film	330 ohm	1/5W J
R438	3069332970	Carbon Film	3.3 kohm	1/5W J
R439	3069221970	Carbon Film	220 ohm	1/5W J
R440	3069271970	Carbon Film	270 ohm	1/5W J
R441	3069221970	Carbon Film	220 ohm	1/5W J
R442	3069101970	Carbon Film	100 ohm	1/5W J
		MISCELLANEOUS		
SW433	4628054410	Switch, Push, 1 Key, ABS Black		
SW401-432	4658003710	Switch, Tact		
FL401	2328130925	FIP 11CM9, FL Display		
L401	2648610182	Inductor 100 uH		
RMC1	2408005001	TFMT5380, 38 kHz, Remocon sensor		
X401	3938131460	Resonator, 4.19MHz		
	6715020730	Sponge, Rubber		
		END OF ASS'Y P.C.B FRONT		
P2-1	**054002007512**	**ASS'Y P.C.B TONE**		
		CAPACITORS		
C701L/R	3479210071	Electrolytic SA	10 uF	50 V M
C702L/R	3519470935	Ceramic Tubular	47 pF	50 V K
C703L/R	3479247971	Electrolytic SA	4.7 uF	50 V M
C704/705	3479347041	Electric SG	47 uF	25 V M
C706L/R	3479210071	Electrolytic SA	10 uF	50 V M
C707L/R	3679183120	Mylar	0.018 uF	100 V J
C708L/R	3679823120	Mylar	0.082 uF	100 V J
C709L/R	3679392120	Mylar	0.0039 uF	100 V J
C710L/R	3679183120	Mylar	0.018 uF	100 V J
C711L/R	3529561935	Ceramic Tubular	560 pF	50 V K
C712	3479333041	Electric SG	33 uF	25 V M
C713L/R	3519101935	Ceramic Tubular	100 pF	50 V K
C715/716	3479210871	Electrolytic SA	0.1 uF	50 V M
		CONNECTORS		
CN701	436108203331	Lead Ass'y 200mm 8P		
CN702	436106223331	Lead Ass'y 220mm 6P		
CN703	436102483331	Lead Ass'y 2P, 480 mm		
		IC		
IC701	2168206103	KIA7559S/KIA4559S		
		TRANSISTOR		
Q701/702	2208606112	KTD1302, NPN		
Q703	2208206105	KTA1015Y/BKTA1266Y, PNP		
		RESISTORS		
R701L/R	3069102970	Carbon Film	1 kohm	1/5W J
R702L/R	3069104970	Carbon Film	100 kohm	1/5W J
R703L/R	3069224970	Carbon Film	220 kohm	1/5W J
R704L/R	3069105970	Carbon Film	1 Mohm	1/5W J
R705/706	3069470970	Carbon Film	47 ohm	1/5W J
R707L/R	3069102970	Carbon Film	1 kohm	1/5W J
R708L/R	3069104970	Carbon Film	100 kohm	1/5W J
R709L/R	3069183970	Carbon Film	18 kohm	1/5W J
R710L/R	3069392970	Carbon Film	3.9 kohm	1/5W J
R711L/R	3069272970	Carbon Film	2.7 kohm	1/5W J
R712L/R	3069751970	Carbon Film	750 ohm	1/5W J
R713/714	3069102970	Carbon Film	1 kohm	1/5W J
R715	3069103970	Carbon Film	10 kohm	1/5W J
R716	3069471970	Carbon Film	470 ohm	1/5W J
R717	3069750970	Carbon Film	75 ohm	1/5W J
R718L/R	3069102970	Carbon Film	1 kohm	1/5W J

Ref. No.	Mfr. Part No.	Description		Version
		MISCELLANEOUS		
17	3208049510	VR Bass/Treble		
18	3208052010	VR, Balance		
20	4438109710	Jack, RCA, 3P, VCR		
	152624102857	LUG, HI-WP #24BK LF 280		
		END OF ASS'Y P.C.B TONE		
P2-2	**054002007508**	**ASS'Y P.C.B VOLUME**		
		CAPACITORS		
C601L/R	3479210871	Electrolytic SA	0.1 uF	50 V M
C602L/R	3519681935	Ceramic Tubular	680 pF	50 V K
C603L/R	3479247971	Electrolytic SA	4.7 uF	50 V M
C604L/R	3479247971	Electrolytic SA	4.7 uF	50 V M
C605/606	3479347041	Electric SG	47 uF	25 V M
C607	3519102935	Ceramic Tubular	1000 pF	50 V K
C608	3479210971	Electrolytic SA	1 uF	50 V M
C609/610	3479347041	Electric SG	47 uF	25 V M
C611	3479210971	Electric SG	1 uF	50 V M
C612	3519102935	Ceramic Tubular	1000 pF	50 V K
C614	3479210071	Electrolytic SA	10 uF	50 V M
C615/616	3479310121	Electric SG	100 uF	10 V M
C617	3479310131	Electric SG	100 uF	16 V M
C619	3479210071	Electrolytic SA	10 uF	50 V M
C620	3479210971	Electric SG	1 uF	50 V M
		CONNECTORS		
CNT102	4428517410	Wafer 15P		
CNT602	436109183331	Lead Ass'y 180mm 9P		
CNT603	4428508210	Wafer 2P		
		DIODES		
D602	2258599102	Zener, UZ 4.3 BSB		
D701	2058322101	1N4148M		
D702	2058322101	1N4148M		
		ICs		
IC601/602	2168206104	KIA7559P/KIA4559P		
IC603	2168007204	TA7291S		
		TRANSISTORS		
Q601	2208606112	KTD1302, NPN		
Q602	2208222105	KTA114Y, PNP		
Q603	2208606112	KTD1302, NPN		
Q604	2208222105	KTA114Y, PNP		
Q605	2208622108	DTC114TS, NPN		
		RESISTORS		
R601L/R	3069512970	Carbon Film	5.1 kohm	1/5W J
R602L/R	3069183970	Carbon Film	18 kohm	1/5W J
R603L/R	3069104970	Carbon Film	100 kohm	1/5W J
R604/605	3069101970	Carbon Film	100 ohm	1/5W J
R606L/R	3069104970	Carbon Film	100 kohm	1/5W J
R607/608	3069512970	Carbon Film	5.1 kohm	1/5W J
R609	3069473970	Carbon Film	47 kohm	1/5W J
R610	3069102970	Carbon Film	1 kohm	1/5W J
R611	3069622970	Carbon Film	6.2 kohm	1/5W J
R612	3069104970	Carbon Film	100 kohm	1/5W J
R613	3069471970	Carbon Film	470 ohm	1/5W J
R614	3069473970	Carbon Film	47 kohm	1/5W J
R615	3069102970	Carbon Film	1 kohm	1/5W J
R616	3069622970	Carbon Film	6.2 kohm	1/5W J
R617	3069104970	Carbon Film	100 kohm	1/5W J
R618	3069471970	Carbon Film	470 ohm	1/5W J
R619/620	3069101970	Carbon Film	100 ohm	1/5W J
R621	3069332970	Carbon Film	3.3 kohm	1/5W J
R622-624	3069102970	Carbon Film	1 kohm	1/5W J
R625-628	3069471970	Carbon Film	470 ohm	1/5W J
R630	3069561970	Carbon Film	560 ohm	1/5W J
R631	3069479970	Carbon Film	4.7 ohm	1/5W J
R632	3069103970	Carbon Film	10 kohm	1/5W J

Ref. No.	Mfr. Part No.	Description			Version
R633	3069302970	Carbon Film	3 kohm	1/5W J	
		MISCELLANEOUS			
22	4628059610	Switch, Push, Loud			
23	3228019410	VR, Motor			
		END OF ASS'Y P.C.B VOLUME			
P2-3	**054002007522**	**ASS'Y P.C.B SPEAKER**			
		CONNECTORS			
CN901	436102283321	Lead Ass'y, 2P, 280mm			
CN902	435209403401	Lead Ass'y, 9P, 400mm			
		RESISTORS			
R901L/R	3029271572	Metal Film	270 ohm	2 W J	
		MISCELLANEOUS			
	152622100607	LUG, HI-W AWG #22BK60			
11	4438005020	Jack, Phone			
12	4628043810	Switch, Push, ABS Black			
13	6165147910	Shield, Fence			
		END OF ASS'Y P.C.B SPEAKER			
P2-4	**054002007514**	**ASS'Y P.C.B VOLUME LED**			
CNT603	435102183181	Lead Ass'y 180mm 2P			
D601	2308220324	LED, SLC-22VR5			
		END OF ASS'Y P.C.B VOLUME LED			
P4	**054002007516**	**ASS'Y P.C.B INPUT FOR USA/CA**			
P4	**054002007965**	**ASS'Y P.C.B INPUT FOR EUROPE**			
		CAPACITORS			
C101L/R	3519101935	Ceramic Tubular	100 pF	50 V K	
C102L/R	3529101935	Ceramic Tubular	100 pF	50V K	Eur.
C103L/R	3479210971	Electrolytic SA	1 uF	50 V M	
C104L/R	3479332041	Electric SG	33 uF	25 V M	
C105L/R	3519223935	Ceramic Tubular	0.022 uF	50 V K	
C106L/R	3679562120	Mylar	0.0056 uF	100 V J	
C107L/R	3679182120	Mylar	0.0018 uF	100 V J	
C108L/R	3479210971	Electrolytic SA	1 uF	50 V M	
C109/110	3479347041	Electric SG	47 uF	25 V M	
C111L/R	3679182120	Mylar	0.0018 uF	100 V J	
C112L/R	3519101935	Ceramic Tubular	100 pF	50 V K	
C113L/R	3529101935	Ceramic Tubular	100 pF	50V K	Eur.
C114L/R	3519101935	Ceramic Tubular	100 pF	50 V K	
C115L/R	3529101935	Ceramic Tubular	100 pF	50V K	Eur.
C116L/R	3519101935	Ceramic Tubular	100 pF	50 V K	
C117L/R	3529101935	Ceramic Tubular	100 pF	50V K	Eur.
C118L/R	3519101935	Ceramic Tubular	100 pF	50 V K	
C119L/R	3519101935	Ceramic Tubular	100 pF	50 V K	
C120L/R	3529101935	Ceramic Tubular	100 pF	50V K	Eur.
C121L/R	3519101935	Ceramic Tubular	100 pF	50 V K	
C122L/R	3519101935	Ceramic Tubular	100 pF	50 V K	
C123L/R	3529101935	Ceramic Tubular	100 pF	50V K	Eur.
C124L/R	3519101935	Ceramic Tubular	100 pF	50 V K	
C125L/R	3519101935	Ceramic Tubular	100 pF	50 V K	
C126L/R	3529101935	Ceramic Tubular	100 pF	50V K	Eur.
C127L/R	3479247971	Electrolytic SA	4.7 uF	50 V M	
C128L/R	3479247971	Electrolytic SA	4.7 uF	50 V M	
C129-132	3479347041	Electric SG	47 uF	25 V M	
C133/134	3479210971	Electrolytic SA	1 uF	50 V M	
C135	3519102935	Ceramic Tubular	1000 pF	50 V K	
C136	3479210971	Electrolytic SA	1 uF	50 V M	
C137	3479347041	Electric SG	47 uF	25 V M	
C138	3479222041	Electrolytic SA	22 uF	25 V M	
C139	3679223120	Mylar	0.022 uF	100 V J	
C140/141	3479347041	Electric SG	47 uF	25 V M	
C142	3479210971	Electrolytic SA	1 uF	50 V M	
C143	3519102935	Ceramic Tubular	1000 pF	50 V K	
C144/145	3479210971	Electrolytic SA	1 uF	50 V M	
C146	3579681130	Ceramic Disc	680 pF	50 V K	
C147	3579471130	Ceramic Disc	470 pF	50 V K	
C148	3579270130	Ceramic Disc	27 pF	50 V K	
C149	3579150130	Ceramic Disc	15 pF	50 V K	
C151	3579809030	Ceramic Disc	8 pF	50 V K	
C152	3479332041	Electric SG	33 uF	25 V M	
C153	3579102130	Ceramic Disc	1000 pF	50 V K	
C154	3579221130	Ceramic Disc	220 pF	50 V K	
C155	3679473120	Mylar	0.047 uF	100 V J	
C156	3479210971	Electrolytic SA	1 uF	50 V M	
C157	3579221130	Ceramic Disc	220 pF	50 V K	
C158	3679473120	Mylar	0.047 uF	100 V J	
C159	3479247871	Electrolytic SA	0.47 uF	50 V M	
C160	3579681130	Ceramic Disc	680 pF	50 V K	
C161	3579471130	Ceramic Disc	470 pF	50 V K	
C162	3579270130	Ceramic Disc	27 pF	50 V K	
C163	3479332041	Electric SG	33 uF	25 V M	
C164	3579809130	Ceramic Disc	8 pF	50 V K	
C166	3579150130	Ceramic Disc	15 pF	50 V K	
C167	3579102130	Ceramic Disc	1000 pF	50 V K	
C168/169	3579221130	Ceramic Disc	220 pF	50 V K	
C170	3679473120	Mylar	0.047 uF	100 V J	
C171	3479210971	Electrolytic SA	1 uF	50 V M	
C172	3679473120	Mylar	0.047 uF	100 V J	
C173-175	3579472530	Ceramic Tubular	0.0047 uF	50 V K	
C176	3479347041	Electric SG	47 uF	25 V M	
C178	3479347041	Electric SG	47 uF	25 V M	
C187	3579104530	Ceramic Disc	0.1 uF	50 V K	
C188	3579473530	Ceramic Disc	0.047 uF	50 V K	
		CONNECTORS			
CN101	436109303331	Lead Ass'y 300mm 9P			
CN102	436215163332	Lead Ass'y 160mm 15P			
CN103	436107463331	Lead Ass'y 460mm 7P			
CN104	436104308331	Lead Ass'y 300mm 4P			
CN108	436402443331	Lead Ass'y 440mm 2P			
CN109	436102223331	Lead Ass'y 220mm 2P			
CP105	4428550120	Wafer 12P GD			
CP106	4428550080	Wafer 8P GD			
CP107	4428550060	Wafer 6P GD			
CP110 (CP2	4428525790	Wafer 3P AC			
CP207	4428525860	Wafer 1P AC			
CP401	4428526370	Wafer, FPC, 25P			
CP701	4428505510	Wafer 8P			
CP702	4428505810	Wafer 6P			
		DIODES			
D101-104	2058322101	1N4148M			
D106-108	2058322101	1N4148M			
D110/111	2058322101	1N4148M			
D116/117	2058322101	1N4148M			
		ICs			
IC101/102	2168017132	LC7821			
IC103	2168206107	KIA6259P			
IC104/105	2168206104	KIA7559P/KIA4559P			
IC106	2408000136	LTV817, Photo-Coupler			
		TRANSISTORS			
Q101-104	2208606104	KTC1815Y/BKTC3198Y,NPN			
Q105	2208222105	DTA114YS, PNP			
Q106/107	2208606108	KTC2240/BKTC3200, NPN			
Q108/109	2208606104	KTC1815Y/BKTC3198Y,NPN			
Q110	2208206102	BKTA949/KTA1024, PNP			
Q111	2208606107	KTC2229/KTC3206, NPN			
Q113	2228406120	BKTC2235/KTC1027, NPN			
Q114	2228106107	BKTA965/KTA1023, PNP			
Q117/118	2208606108	KTC2240/BKTC3200, NPN			
Q119/120	2208606104	KTC1815Y/BKTC3198Y,NPN			
Q121	2208206102	BKTA949/KTA1024, PNP			
Q122	2208606107	KTC2229/KTC3206, NPN			
Q124	2228406120	BKTC2235/KTC1027, NPN			
Q125	2228106107	BKTA965/KTA1023, PNP			
Q128/129	2208606104	KTC1815Y/BKTC3198Y,NPN			

Ref. No.	Mfr. Part No.	Description			Version
Q130	2208222105	DTA114YS, PNP			
		RESISTORS			
R101L/R	3069102970	Carbon Film	1 kohm	1/5W J	
R102L/R	3069913970	Carbon Film	91 kohm	1/5W J	
R103L/R	3069913970	Carbon Film	91 kohm	1/5W J	
R104L/R	3069821970	Carbon Film	820 ohm	1/5W J	
R105L/R	3069564970	Carbon Film	560 kohm	1/5W J	
R106L/R	3069433970	Carbon Film	43 kohm	1/5W J	
R107/108	3069470970	Carbon Film	47 ohm	1/5W J	
R109L/R	3069471970	Carbon Film	470 ohm	1/5W J	
R110L/R	3069104970	Carbon Film	100 kohm	1/5W J	
R111L/R	3069102970	Carbon Film	1 kohm	1/5W J	
R112L/R	3069102970	Carbon Film	1 kohm	1/5W J	
R113L/R	3069102970	Carbon Film	1 kohm	1/5W J	
R114L/R	3069102970	Carbon Film	1 kohm	1/5W J	
R115L/R	3069102970	Carbon Film	1 kohm	1/5W J	
R116L/R	3069102970	Carbon Film	1 kohm	1/5W J	
R117L/R	3069102970	Carbon Film	1 kohm	1/5W J	
R118L/R	3069102970	Carbon Film	1 kohm	1/5W J	
R119L/R	3069102970	Carbon Film	1 kohm	1/5W J	
R120L/R	3069473970	Carbon Film	47 kohm	1/5W J	
R121	3069471970	Carbon Film	470 ohm	1/5W J	
R122L/R	3069104970	Carbon Film	100 kohm	1/5W J	
R123-126	3069471970	Carbon Film	470 ohm	1/5W J	
R127	3069104970	Carbon Film	100 kohm	1/5W J	
R128/129	3069102970	Carbon Film	1 kohm	1/5W J	
R130	3069104970	Carbon Film	100 kohm	1/5W J	
R131	3069123970	Carbon Film	12 kohm	1/5W J	
R132	3069202970	Carbon Film	2 kohm	1/5W J	
R133	3069104970	Carbon Film	100 kohm	1/5W J	
R134	3069471970	Carbon Film	470 ohm	1/5W J	
R135	3069332970	Carbon Film	3.3 kohm	1/5W J	
R136	3069222970	Carbon Film	2.2 kohm	1/5W J	
R137/138	3069471970	Carbon Film	470 ohm	1/5W J	
R139	3069104970	Carbon Film	100 kohm	1/5W J	
R140	3069202970	Carbon Film	2 kohm	1/5W J	
R141	3069123970	Carbon Film	12 kohm	1/5W J	
R144	3069104970	Carbon Film	100 kohm	1/5W J	
R145	3069471970	Carbon Film	470 ohm	1/5W J	
R146	3069332970	Carbon Film	3.3 kohm	1/5W J	
R147	3069393970	Carbon Film	39 kohm	1/5W J	
R148	3069681970	Carbon Film	680 ohm	1/5W J	
R149/150	3069103970	Carbon Film	10 kohm	1/5W J	
R151/152	3069433970	Carbon Film	43 kohm	1/5W J	
R153	3069433970	Carbon Film	43 kohm	1/5W J	
R154	3069182970	Carbon Film	1.8 kohm	1/5W J	
R155	3069393970	Carbon Film	39 kohm	1/5W J	
R156	3069332970	Carbon Film	3.3 kohm	1/5W J	
R157	3069104970	Carbon Film	100 kohm	1/5W J	
R159	3069121970	Carbon Film	120 ohm	1/5W J	
R160	3069102970	Carbon Film	1 kohm	1/5W J	
R161	3069272970	Carbon Film	2.7 kohm	1/5W J	
R162	3069121970	Carbon Film	120 ohm	1/5W J	
R163	3069221970	Carbon Film	220 ohm	1/5W J	
R164/165	3059278682	Cement	0.27 ohm	3 W K	
R166	3069471970	Carbon Film	470 ohm	1/5W J	
R167	3069472970	Carbon Film	4.7 kohm	1/5W J	
R168	3069153970	Carbon Film	15 kohm	1/5W J	
R169	3069100270	Carbon Film	10 ohm	1/4W J	
R170	3069100270	Carbon Film	10 ohm	1/4W J	
R171	3069393970	Carbon Film	39 kohm	1/5W J	
R172/173	3069103970	Carbon Film	10 kohm	1/5W J	
R174	3069681970	Carbon Film	680 ohm	1/5W J	
R175	3069104970	Carbon Film	100 kohm	1/5W J	
R176	3069332970	Carbon Film	3.3 kohm	1/5W J	
R177/178	3069432970	Carbon Film	4.3 kohm	1/5W J	
R179	3069433970	Carbon Film	43 kohm	1/5W J	
R180	3069182970	Carbon Film	1.8 kohm	1/5W J	
R181	3069393970	Carbon Film	39 kohm	1/5W J	
R182	3069121970	Carbon Film	120 ohm	1/5W J	
R183	3069272970	Carbon Film	2.7 kohm	1/5W J	
R184	3069102970	Carbon Film	1 kohm	1/5W J	
R185	3069121970	Carbon Film	120 ohm	1/5W J	
R186	3069221970	Carbon Film	220 ohm	1/5W J	
R187/188	3059278682	Cement	0.27 ohm	3 W K	
R189	3069271970	Carbon Film	270 ohm	1/5W J	
R190	3069472970	Carbon Film	4.7 kohm	1/5W J	
R191	3069153970	Carbon Film	15 kohm	1/5W J	
R192	3069100270	Carbon Film	10 ohm	1/4W J	
R193	3069100270	Carbon Film	10 ohm	1/4W J	
R194/195	3069243970	Carbon Film	24 kohm	1/5W J	
R196	3069392970	Carbon Film	3.9 kohm	1/5W J	
R197	3069470970	Carbon Film	47 ohm	1/5W J	
R198	3069473970	Carbon Film	47 kohm	1/5W J	
R199	3069271970	Carbon Film	270 ohm	1/5W J	
R200	3069101970	Carbon Film	100 ohm	1/5W J	
R201	3069102970	Carbon Film	1 kohm	1/5W J	
R202	3069102970	Carbon Film	1 kohm	1/5W J	
		MISCELLANEOUS			
32	4438108110	Jack, RAC, 4P			
35	4438103210	Jack, RCA, 6P			
38	4408107410	Terminal, Speaker, 6P			
39	4438006510	Jack, Multi			
G1	4235007310	Ground Plate			
57	4438103110	Terminal, 4P			
58	4438108010	Jack, RAC, 4P, with Ground			
	152624101043	LUG, HI-WP #24BK FF 100			
	152624101843	LUG, HI-WP #24BK FF 180			
		END OF ASS'Y P.C.B INPUT			
P4-1	**054002007518**	**ASS"Y P.C.B TUNER FOR USA/CA**			
P4-1	**054002007967**	**ASS"Y P.C.B TUNER FOR EUROPE**			
		CAPACITORS			
C801	3479310141	Electric SG	100 uF	25 V M	
C802	3519223935	Ceramic Tubular	0.022 uF	50 V K	
C804-809	3519223935	Ceramic Tubular	0.022 uF	50 V K	
C810	3479347041	Electric SG	47 uF	25 V M	
C811	3519820935	Ceramic Tubular	82 pF	50V K	Eur.
C812	3519101935	Ceramic Tubular	100 pF	50V K	Eur.
C813	3679333120	Mylar	0.033 uF	100 V J	
C814	3519331935	Ceramic Tubular	330 pF	50 V K	USA/CA
C814	3519101935	Ceramic Tubular	100 pF	50V K	Eur.
C815	3479247871	Electrolytic SA	0.47 uF	50 V M	
C816	3519223935	Ceramic Tubular	0.022 uF	50 V K	
C817	3479247971	Electrolytic SA	4.7 uF	50 V M	
C818	3479233971	Electrolytic SA	3.3 uF	50 V M	
C819	3479247971	Electrolytic SA	4.7 uF	50 V M	
C820	3519470935	Ceramic Tubular	47 pF	50 V K	
C821	3519223935	Ceramic Tubular	0.022 uF	50 V K	
C822	3679332120	Mylar	0.0033 uF	100 V J	
C823	3479222971	Electrolytic SA	2.2 uF	50 V M	
C824/825	3528330210	Ceramic Disc CH	33 pF	50 V K	
C826-828	3519101935	Ceramic Tubular	100 pF	50 V K	
C829	3519103935	Ceramic Tubular	0.01 uF	50 V K	
C830	3479210971	Electrolytic SA	1 uF	50 V M	
C831	3479347041	Electric SG	47 uF	25 V M	
C832	3519223935	Ceramic Tubular	0.022 uF	50 V K	
C833	3479347041	Electric SG	47 uF	25 V M	
C834	3519223935	Ceramic Tubular	0.022 uF	50 V K	
C835	3679473120	Mylar	0.047 uF	100 V J	
C836	3619471110	Poly	470 pF	50 V J	
C837	3479210071	Electrolytic SA	10 uF	50 V M	
C838	3519223935	Ceramic Tubular	0.022 uF	50 V K	
C839	3519103935	Ceramic Tubular	0.01 uF	50 V K	
C840	3479233971	Electrolytic SA	3.3 uF	50 V M	
C841/842	3479210971	Electrolytic SA	1 uF	50 V M	
C843	3479233971	Electrolytic SA	3.3 uF	50 V M	
C844	3619102110	Poly	1000 pF	50 V J	
C845	3679473120	Mylar	0.047 uF	100 V J	
C846	3519681935	Ceramic Tubular	680 pF	50 V K	

Ref. No.	Mfr. Part No.	Description				Version
R842/843	3069102970	Carbon Film	1 kohm	1/5W	J	
R844/845	3069302970	Carbon Film	3 kohm	1/5W	J	
R850	3069471970	Carbon Film	470 ohm	1/5W	J	
R865	3069103970	Carbon Film	10 kohm	1/5W	J	
R867/868	3069104970	Carbon Film	100 kohm	1/5W	J	
R869	3069102970	Carbon Film	1 kohm	1/5W	J	
R870	3069562970	Carbon Film	5.6 kohm	1/5W	J	
R888/889	3069271970	Carbon Film	270 ohm	1/5W	J	
R890/891	3069221970	Carbon Film	220 ohm	1/5W	J	
R892-898	3069271970	Carbon Film	270 ohm	1/5W	J	
		COILS				
L801	2648601430	Coil, 20.8 mH				
T801	2608201120	AM ANT				
T802	2638201150	OSC., AM				
T803	2838501110	FM Quad DET(A)				
T804	2838501210	FM Quad DET(B)				
T805	2848001250	AM IFT, P-7SB				
T806/807	2658001050	MPX 19 k/38 kHz, Coil, Black				
VR801	3248020343	Semi, 20K(B)				
VR802	3248050343	Semi, 50K(B)				
VR803	3248050243	Semi, 5K(B)				
VR804	3248020443	Semi, 200K(B)				
		MISCELLANEOUS				
33	4408108310	Terminal, Antenna				USA/CA
	4408108210	Terminal, Antenna				Eur.
FE1	3928101790	FM Front End,3-505H				USA/CA
FE1	**3928801890**	FM Front End,FE407-G60				Eur.
XT801	3908101031	Resonator, 7.2MHz				
		END OF ASS"Y P.C.B TUNER				
P3	**054002007503**	**ASS'Y P.C.B SURROUND**				
		CAPACITORS				
C501	3479210071	Electrolytic SA	10 uF	50 V	M	
C502	3479347041	Electric SG	47 uF	25 V	M	
C503-505	3479210071	Electrolytic SA	10 uF	50 V	M	
C506	3479347041	Electric SG	47 uF	25 V	M	
C507/508	3479210071	Electrolytic SA	10 uF	50 V	M	
C509/510	3479347041	Electric SG	47 uF	25 V	M	
C511	3519101935	Ceramic Tubular	100 pF	50 V	K	
C512	3479210971	Electrolytic SA	1 uF	50 V	M	
C513	3479247871	Electrolytic SA	0.47 uF	50 V	J	
C514	3479347041	Electric SG	47 uF	25 V	M	
C515	3519681935	Ceramic Tubular	680 pF	50 V	K	
C516	3479210971	Electrolytic SA	1 uF	50 V	M	
C517	3479347041	Electric SG	47 uF	25 V	M	
C518	3479210971	Electrolytic SA	1 uF	50 V	M	
C519	3519681935	Ceramic Tubular	680 pF	50 V	K	
C520	3479210971	Electrolytic SA	1 uF	50 V	M	
C521	3519101935	Ceramic Tubular	100 pF	50 V	K	
C522	3679104297	Mylar	0.1 uF	63 V	J	
C523	3679223297	Mylar	0.022 uF	63 V	J	
C524/525	3479247971	Electrolytic SA	4.7 uF	50 V	M	
C526-528	3679224297	Mylar	0.22 uF	63 V	J	
C529	3679684297	Mylar	0.68 uF	63 V	J	
C530	3619471110	Poly	470 pF	50 V	J	
C531	3679473120	Mylar	0.047 uF	100 V	J	
C532	3679222120	Mylar	0.0022 uF	100 V	J	
C533	3479210971	Electrolytic SA	1 uF	50 V	M	
C534	3479322131	Electric SG	220 uF	16 V	M	
C535	3679562120	Mylar	0.0056 uF	100 V	J	
C536/537	3479210971	Electrolytic SA	1 uF	50 V	M	
C538	3479322131	Electric SG	220 uF	16 V	M	
C539	3479210071	Electrolytic SA	10 uF	50 V	M	
C540	3479222871	Electrolytic SA	0.22 uF	50 V	K	
C541-543	3479210971	Electrolytic SA	1 uF	50 V	M	
C544-546	3679104297	Mylar	0.1 uF	63 V	J	
C547/548	3679224297	Mylar	0.22 uF	63 V	J	
C549	3679104297	Mylar	0.1 uF	63 V	J	
C550	3679473120	Mylar	0.047 uF	100 V	J	

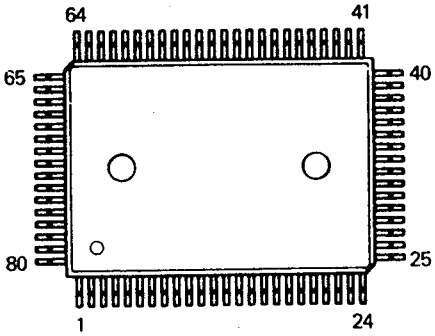
Ref. No.	Mfr. Part No.	Description				Version
C847/848	3479222061	Electrolytic SA	22 uF	35 V	M	
C849/850	3679152120	Mylar	0.0015 uF	100 V	J	USA/CA
C849/850	3679102120	Mylar	0.001 uF	100V	J	Eur.
C851	3519151935	Ceramic Tubular	150 pF	50 V	K	
C852/853	3479222971	Electrolytic SA	2.2 uF	50 V	M	
C856/857	3679392120	Mylar	0.0039 uF	100 V	J	
C858	3479310141	Electric SG	100 uF	25 V	M	
TC801	3579200130	Ceramic, Disc	20 pF	50 V	K	
TC802	3579100030	Ceramic, Disc	10 pF	50 V	K	
		FILTERS				
CF801-803	3908011001	SFE10.7MA8				
CF804	3908001380	SFZ450F				
CF805	3908001020	BFU450C				
		CONNECTORS				
CN105	4428560120	Connector, GB200-12S-LS				
		DIODES				
D801	2258599103	Zener, UZ 5.1 BSB				
D802/803	2058322101	1N4148M				
VD1/VD2	2058819106	KV1236Z, Diode, Varactor				
		ICs				
IC801	2168017128	LA1266				
IC802	2138017112	LM7001				
IC803	2168411105	HA12016				
		TRANSISTORS				
Q801	2208406103	KTC1923Y, NPN				
Q802	2018211100	2SK168, FET				
Q803	2208606108	KTC2240/BKTC3200, NPN				
Q804	2208222105	DTA114YS, PNP				
Q805/806	2208606104	KTC1815Y/BKTC3198Y,NPN				
Q808	2208222105	DTA114YS, PNP				
		RESISTORS				
R801	3069104970	Carbon Film	100k ohm	1/5W	J	Eur.
R802	3069623970	Carbon Film	62K ohm	1/5W	J	Eur.
R803	3069471970	Carbon Film	470 ohm	1/5W	J	
R804	3069332970	Carbon Film	3.3 kohm	1/5W	J	
R805/806	3069331970	Carbon Film	330 ohm	1/5W	J	
R807	3069103970	Carbon Film	10 kohm	1/5W	J	
R808	3069332970	Carbon Film	3.3 kohm	1/5W	J	
R809	3069473970	Carbon Film	47 kohm	1/5W	J	
R810	3069820970	Carbon Film	82 ohm	1/5W	J	
R811	3069243970	Carbon Film	24 kohm	1/5W	J	
R812	3069103970	Carbon Film	10 kohm	1/5W	J	
R813	3069272970	Carbon Film	2.7 kohm	1/5W	J	
R814	3069472970	Carbon Film	4.7 kohm	1/5W	J	
R815	3069222970	Carbon Film	2.2 kohm	1/5W	J	USA/CA
R815	3069332970	Carbon Film	3.3k ohm	1/5W	J	Eur.
R816	3069272970	Carbon Film	2.7 kohm	1/5W	J	
R817/818	3069104970	Carbon Film	100 kohm	1/5W	J	
R819	3069473970	Carbon Film	47 kohm	1/5W	J	
R820	3069223970	Carbon Film	22 kohm	1/5W	J	
R821-823	3069102970	Carbon Film	1 kohm	1/5W	J	
R824	3069821970	Carbon Film	820 ohm	1/5W	J	
R825	3069152970	Carbon Film	1.5 kohm	1/5W	J	
R826	3069103970	Carbon Film	10 kohm	1/5W	J	
R827	3069102970	Carbon Film	1 kohm	1/5W	J	
R828	3069101970	Carbon Film	100 ohm	1/5W	J	
R829/830	3069104970	Carbon Film	100 kohm	1/5W	J	
R831/832	3069223970	Carbon Film	22 kohm	1/5W	J	
R833/834	3069332970	Carbon Film	3.3 kohm	1/5W	J	USA/CA
R833/834	3069203970	Carbon Film	2k ohm	1/5W	J	Eur.
R835/836	3069473970	Carbon Film	47 kohm	1/5W	J	
R837	3069392970	Carbon Film	3.9 kohm	1/5W	J	
R838-839	3069332970	Carbon Film	3.3 kohm	1/5W	J	USA/CA
R838/839	3069243970	Carbon Film	2.4k ohm	1/5W	J	Eur.
R840-841	3069332970	Carbon Film	3.3 kohm	1/5W	J	USA/CA

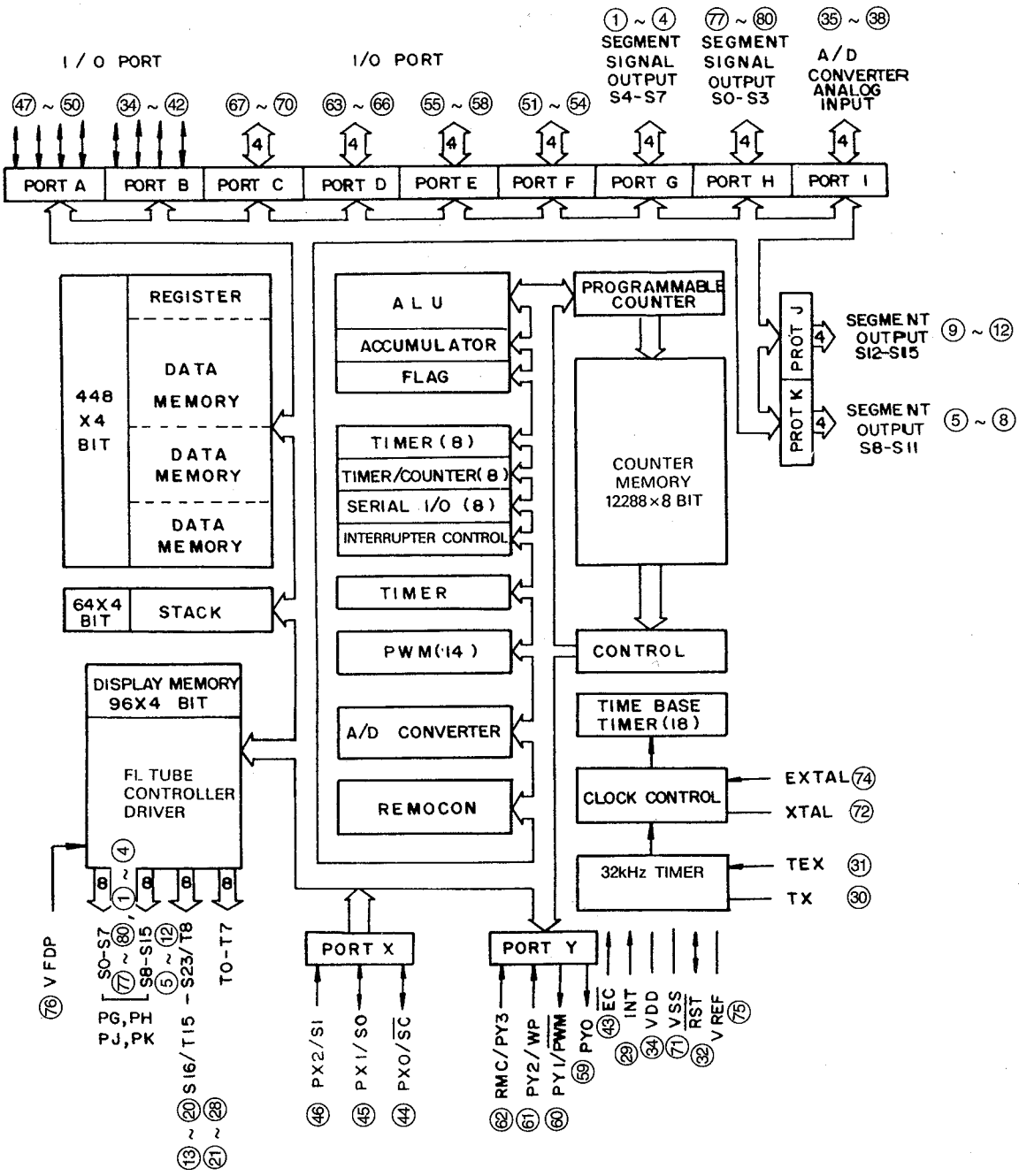
Ref. No.	Mfr. Part No.	Description			Version
C551	3619681110	Poly	680 pF	50 V	J
C552	3679104297	Mylar	0.1 uF	63 V	J
C553	3619681110	Poly	680 pF	50 V	J
C554	3679473120	Mylar	0.047 uF	100 V	J
C555	3479210061	Electrolytic SA	10 uF	35 V	M
C556	3479210971	Electrolytic SA	1 uF	50 V	M
C557/558	3679104297	Mylar	0.1 uF	63 V	J
C559	3479210971	Electrolytic SA	1 uF	50 V	M
C560	3479210061	Electrolytic SA	10 uF	35 V	M
C561	3679472120	Mylar	0.0047 uF	100 V	J
C562	3479222071	Electrolytic SA	22 uF	50 V	M
C563	3679562120	Mylar	0.0056 uF	100 V	J
C564	3479310121	Electric SG	100 uF	10 V	M
C565	3579104530	Ceramic Tubular	0.1 uF	50 V	K
C566	3679562120	Mylar	0.0056 uF	100 V	J
C567	3579471130	Ceramic Disc	470 pF	50 V	K
C568	3679104297	Mylar	0.1 uF	63 V	J
C569	3479347041	Electric SG	47 uF	25 V	M
C570/571	3679473120	Mylar	0.047 uF	100 V	J
C572	3679104297	Mylar	0.1 uF	63 V	J
C573	3679332120	Mylar	0.0033 uF	100 V	J
C574	3579471130	Ceramic Disc	470 pF	50 V	K
C576/577	3579271130	Ceramic Disc	270 pF	100 V	K
C578-580	3519101935	Ceramic Tubular	100 pF	50 V	K
C582	3479347041	Electric SG	47 uF	25 V	M
C583	3579103530	Ceramic Tubular	0.01 uF	50 V	K
C584	3519101935	Ceramic Tubular	100 pF	50 V	K
C585	3479310121	Electric SG	100 uF	10 V	M
		CONNECTORS			
CNT106	4428560080	Connector, GB200-08S-LS			
CNT107	4428560060	Connector, GB200-06S-LS			
CNT602	4428507010	Wafer 9P			
		DIODES			
D501-503	2058322101	1N4148M			
		ICs			
IC501/502	2168206103	KIA7559S/KIA4559S			
IC503/504	2138017108	LC4966			
IC505	2168206104	KIA7559P/KIA4559P			
IC506	2138007124	TC9176P			
IC507	2168020115	NJM2177L			
IC508	2168020114	NJU9701D			
IC509	2138009115	MC14094BCP			
		TRANSISTORS			
Q501/502	2208222105	DTA114YS, PNP			
Q503/504	2208622106	DTC114YS, NPN			
Q505/506	2208222105	DTA114YS, PNP			
Q507/508	2208622106	DTC114YS, NPN			
		RESISTORS			
R501	3069101970	Carbon Film	100 ohm	1/5W	J
R502/503	3069104970	Carbon Film	100 kohm	1/5W	J
R504	3069101970	Carbon Film	100 ohm	1/5W	J
R505-508	3069104970	Carbon Film	100 kohm	1/5W	J
R510/511	3069154970	Carbon Film	150 kohm	1/5W	J
R512/513	3069101970	Carbon Film	100 ohm	1/5W	J
R514/515	3069223970	Carbon Film	22 kohm	1/5W	J
R516	3069124970	Carbon Film	120 kohm	1/5W	J
R517	3069103970	Carbon Film	10 kohm	1/5W	J
R518	3069104970	Carbon Film	100 kohm	1/5W	J
R519	3069101970	Carbon Film	100 ohm	1/5W	J
R520	3069473970	Carbon Film	47 kohm	1/5W	J
R521	3069362970	Carbon Film	3.6 kohm	1/5W	J
R522	3069564970	Carbon Film	560 kohm	1/5W	J
R523	3069182970	Carbon Film	1.8 kohm	1/5W	J
R524	3069101970	Carbon Film	100 ohm	1/5W	J
R525	3069104970	Carbon Film	100 kohm	1/5W	J
R526	3069472970	Carbon Film	4.7 kohm	1/5W	J

Ref. No.	Mfr. Part No.	Description			Version
R527	3069182970	Carbon Film	1.8 kohm	1/5W	J
R528	3069564970	Carbon Film	560 kohm	1/5W	J
R529-531	3069102970	Carbon Film	1 kohm	1/5W	J
R532	3069334970	Carbon Film	330 kohm	1/5W	J
R533-535	3069153970	Carbon Film	15 kohm	1/5W	J
R536-538	3069104970	Carbon Film	100 kohm	1/5W	J
R539	3069470970	Carbon Film	47 ohm	1/5W	J
R540/541	3069104970	Carbon Film	100 kohm	1/5W	J
R542	3069473970	Carbon Film	47 kohm	1/5W	J
R543	3069752970	Carbon Film	7.5 kohm	1/5W	J
R544	3069473970	Carbon Film	47 kohm	1/5W	J
R545	3069153970	Carbon Film	15 kohm	1/5W	J
R546	3069752970	Carbon Film	7.5 kohm	1/5W	J
R547	3069473970	Carbon Film	47 kohm	1/5W	J
R548	3069153970	Carbon Film	15 kohm	1/5W	J
R549	3069223970	Carbon Film	22 kohm	1/5W	J
R550	3069106970	Carbon Film	10 Mohm	1/5W	J
R551	3069223970	Carbon Film	22 kohm	1/5W	J
R552	3069104970	Carbon Film	100 kohm	1/5W	J
R553	3069822970	Carbon Film	8.2 kohm	1/5W	J
R554	3069752970	Carbon Film	7.5 kohm	1/5W	J
R555	3069560970	Carbon Film	56 ohm	1/5W	J
R556	3069183970	Carbon Film	18 kohm	1/5W	J
R557	3069562970	Carbon Film	5.6 kohm	1/5W	J
R558	3069220970	Carbon Film	22 ohm	1/5W	J
R559	3069153970	Carbon Film	15 kohm	1/5W	J
R560	3069220970	Carbon Film	22 ohm	1/5W	J
R561	3069183970	Carbon Film	18 kohm	1/5W	J
R562	3069153970	Carbon Film	15 kohm	1/5W	J
R563	3069470970	Carbon Film	47 ohm	1/5W	J
R564	3069105970	Carbon Film	1 Mohm	1/5W	J
R565-567	3069102970	Carbon Film	1 kohm	1/5W	J
R569	3069471970	Carbon Film	470 ohm	1/5W	J
R570	3069102970	Carbon Film	1 kohm	1/5W	J
R571/572	3069102970	Carbon Film	1 kohm	1/5W	J
R573	3069101970	Carbon Film	100 ohm	1/5W	J
		X-TAL			
X501	3938131740	Resonator, 2MHz			
		END OF ASS'Y P.C.B SURROUND			
P5	**058582000079**	**ASS"Y COMMANDER**			
1	048582001124	Cover, top			
2	8582001210	Cover, Bottom			
3	8583004410	Cover, Battery			
4	048552003671	Inlay, Commander			
5	048722000991	Button, Silicon			
6	8555040210	Cover, Upper			
7	6555009710	Spring, Battery (+)			
8	6555009810	Spring, Battery (-)			
9	6555605310	Spring, Battery (B)			
10	8019120103	Screw, PM 2x10 ZNB			
C01	3409247022	Electric SS	47 uF	10 V	M
C02	3519103935	Ceramic Tubula	0.01 uF	50 V	M
C04	3519470935	Ceramic Tubula	47 pF	50 V	M
D01	2408001139	Diode, IR-LED EL-5HIR7			
IC01	2138313214	IC, u-PD6126A			
Q01	2208606112	KTD1302, NPN			
R01	3069229970	Carbon Film	2.2 ohm	1/5W	J
R02	3069101970	Carbon Film	100 ohm	1/5W	J
X-TAL	3938101890	CRA455, Resonator, Ceramic			
		END OF ASS'Y COMMANDER			
P4-2	**054002007969**	**ASS'Y P.C.B OUTLET FOR EUROPE ONLY**			
	5508302535	Fuse, 5T 2.5 A, 250 V, SEMKO			Eur.
CNT201CD	4358850216	CTB, 0216, BL102R, MXH40113-2			Eur.
CNT202CD	4359852214	CTB, 0114, LV, Diamond, SL R#22			Eur.
48	4448103610	Outlet, AC, YKE31-0090			Eur.
P1/P2	4228001410	Pin, Solder			Eur.

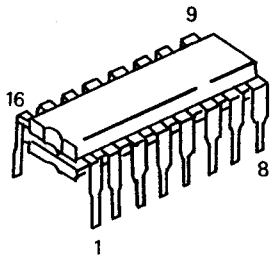
SEMICONDUCTOR LEAD IDENTIFICATION & INTERNAL DIAGRAM

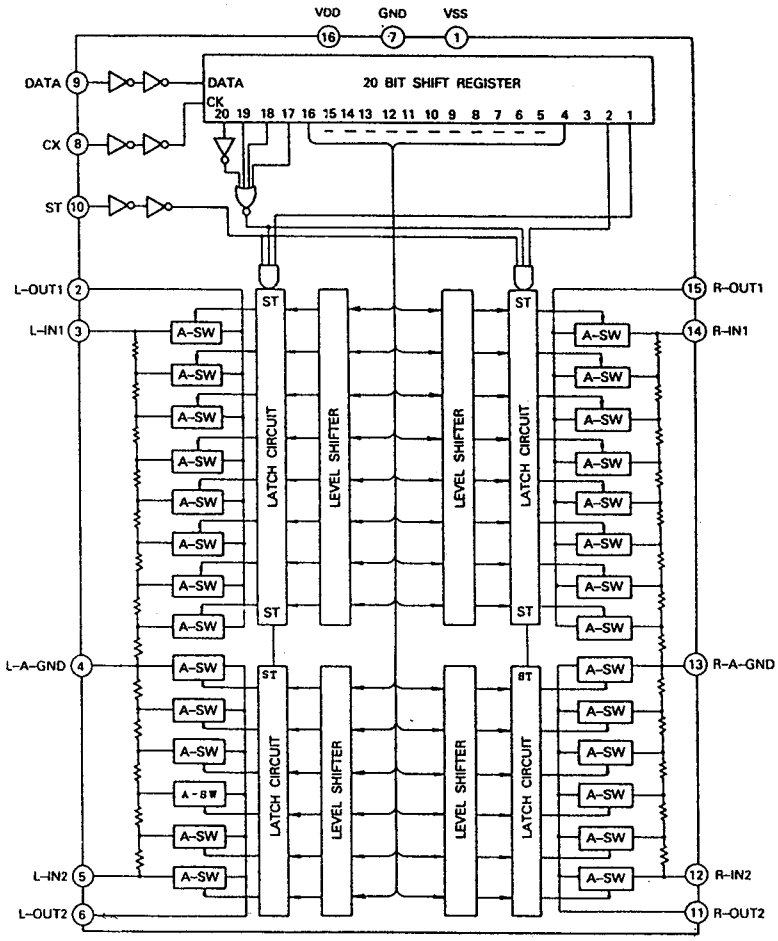
CXP50116 : IC401
(Top View)



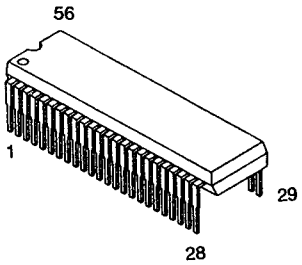


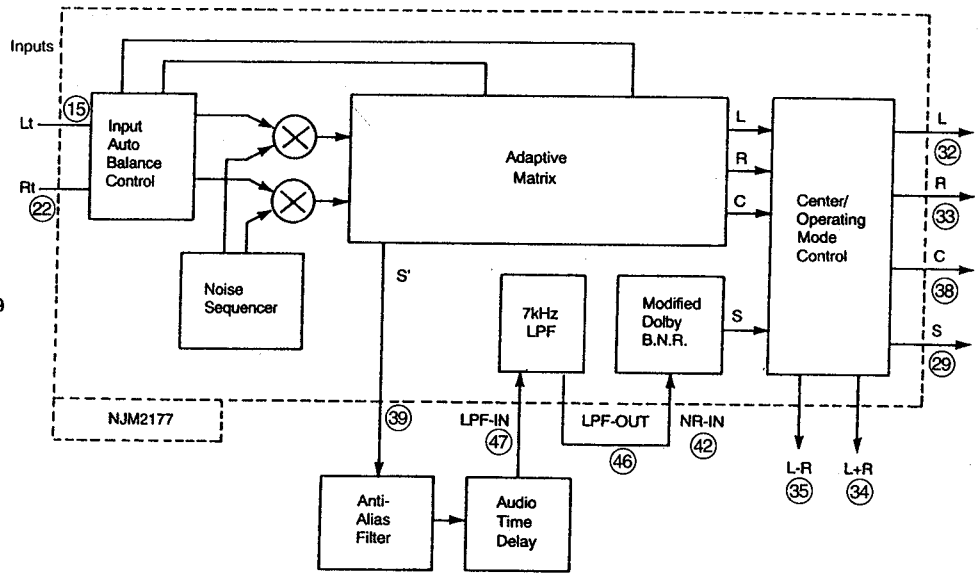
TC9176 : IC506



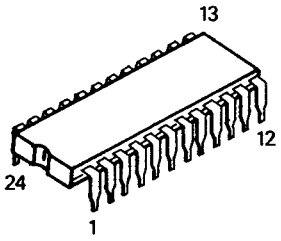


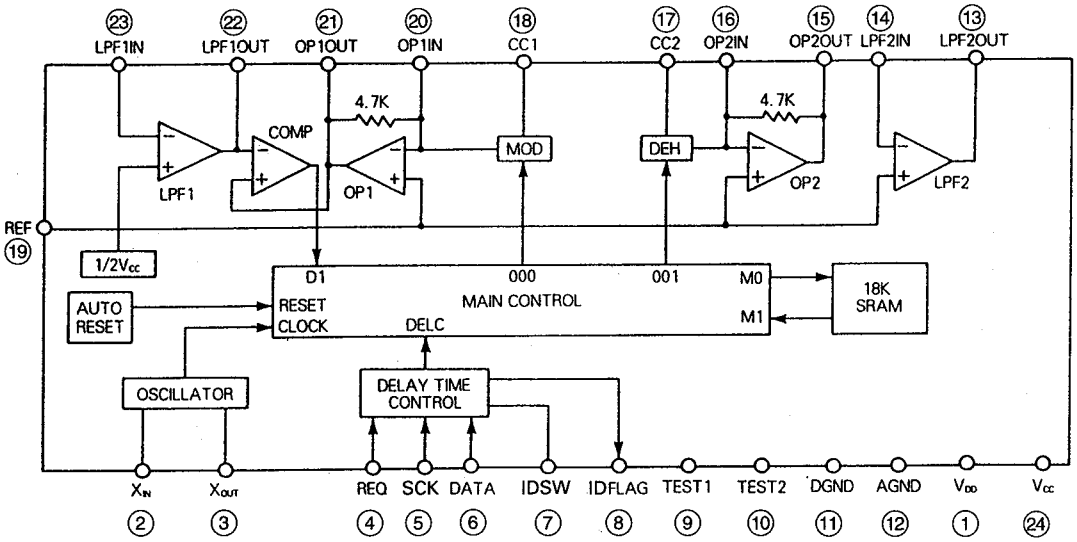
NJM2177 : IC507



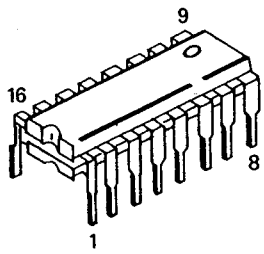


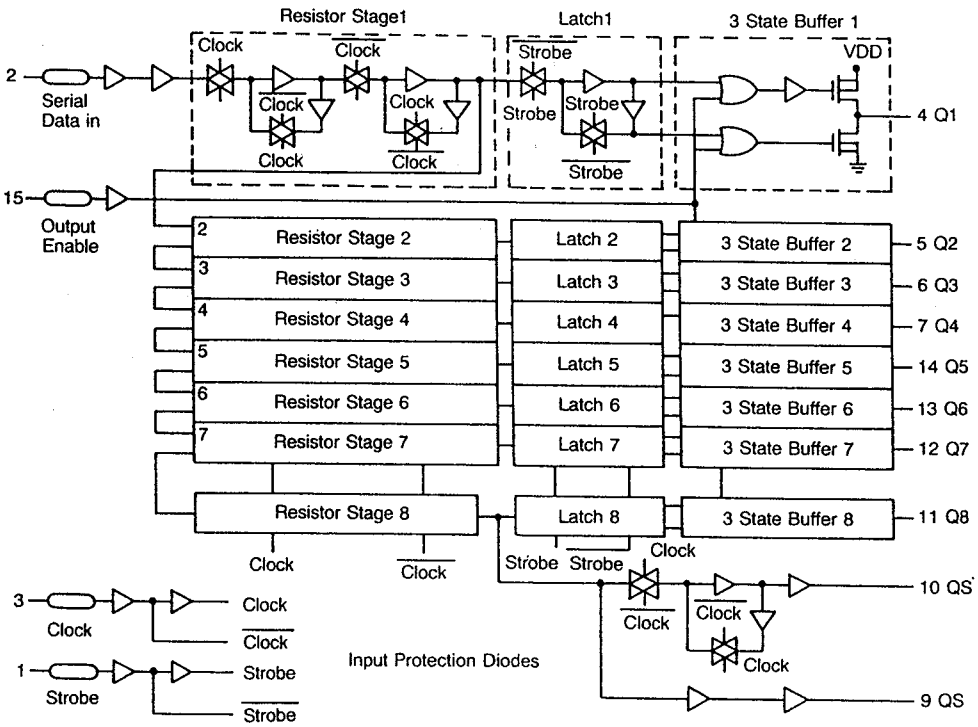
NJU9701 : IC508



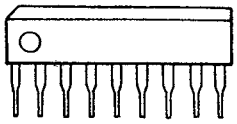


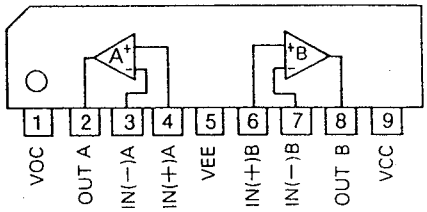
MC14094 : IC509



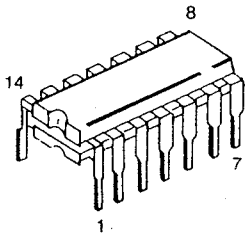


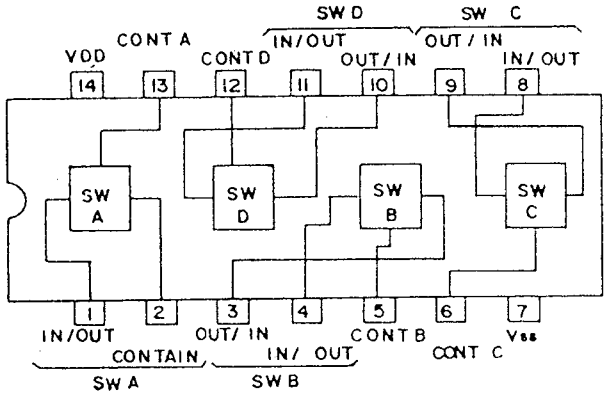
KIA4559S : IC501, IC502, IC701
(KIA7559)



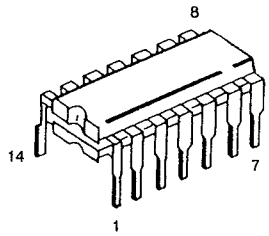


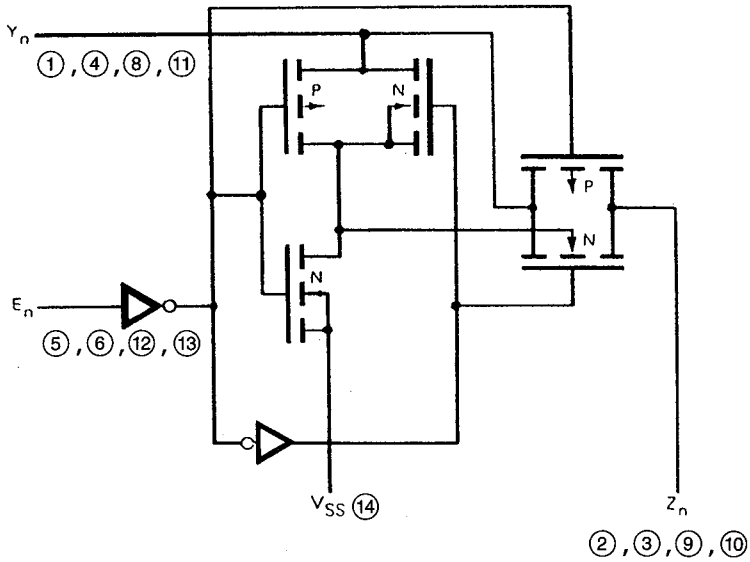
LC4966B : IC503, IC504



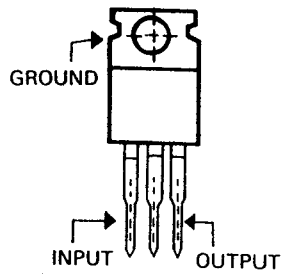


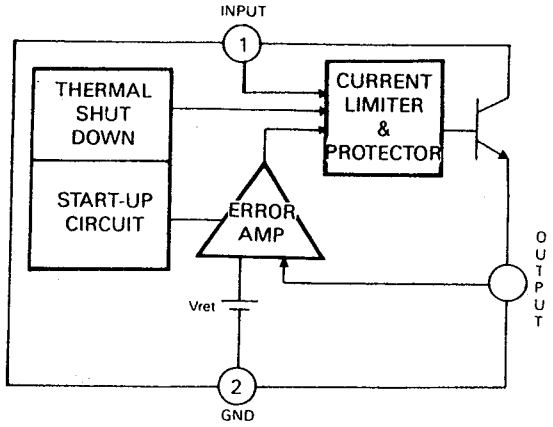
GD4066 : IC301



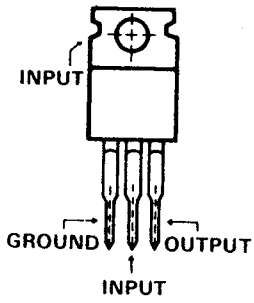


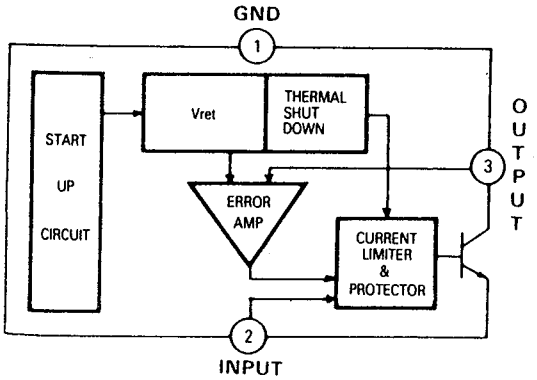
GD78XX : IC201, IC202, IC203



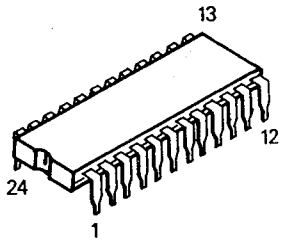


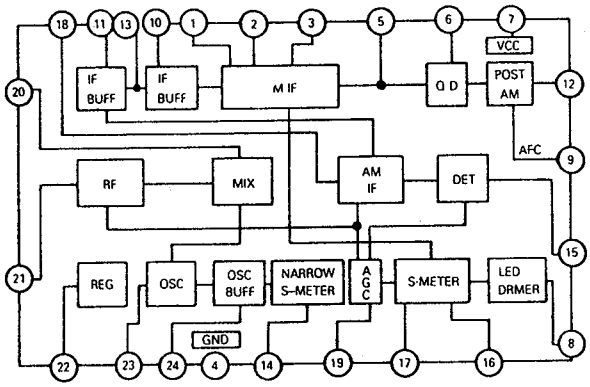
GD7915 : IC204



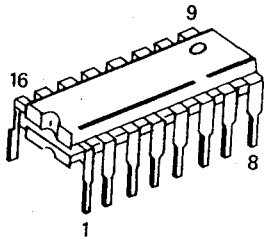


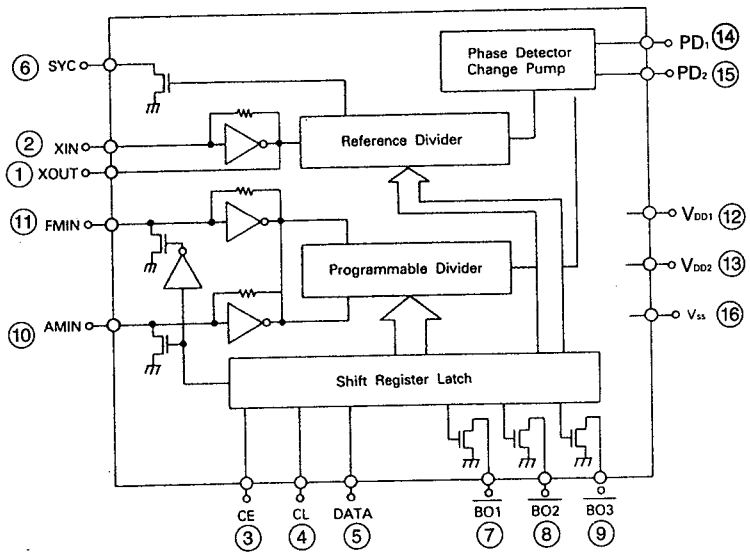
LA1266 : IC801



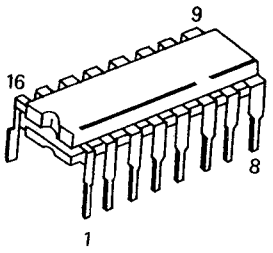


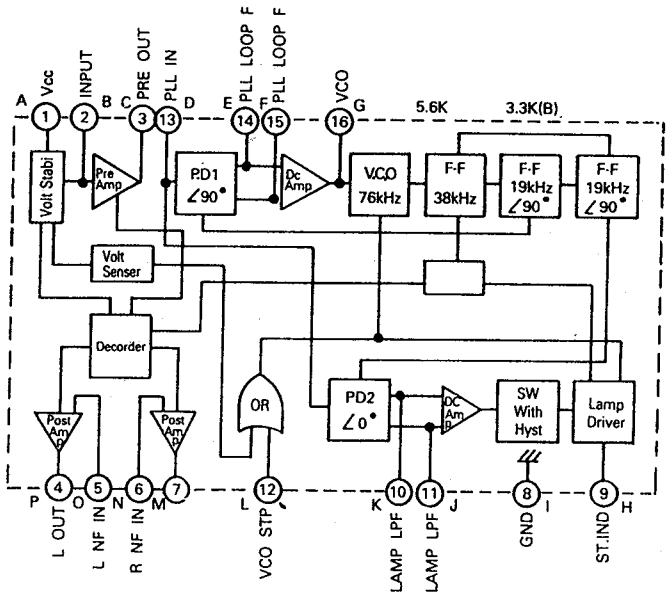
LM7001 : IC802



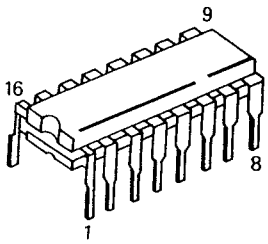


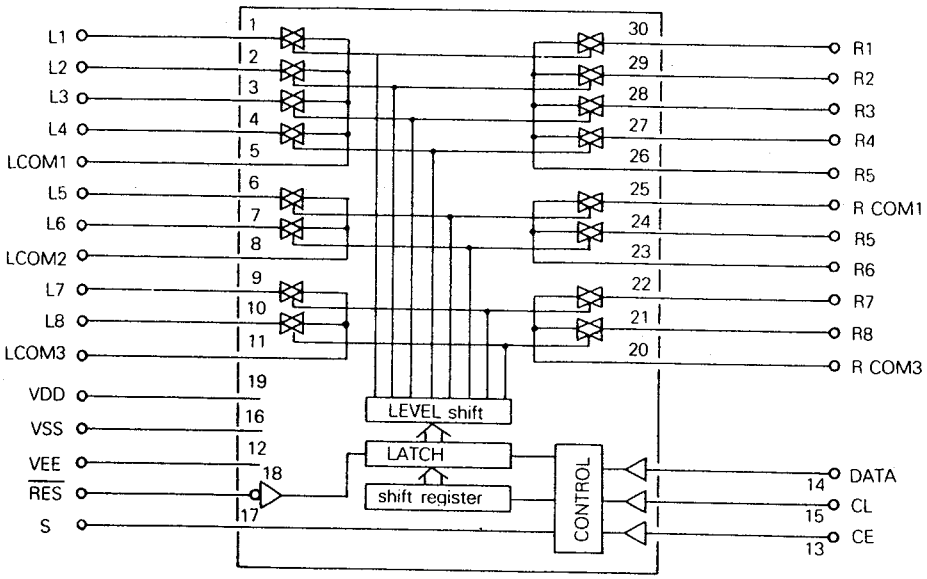
HA12016 : IC803



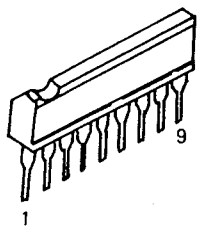


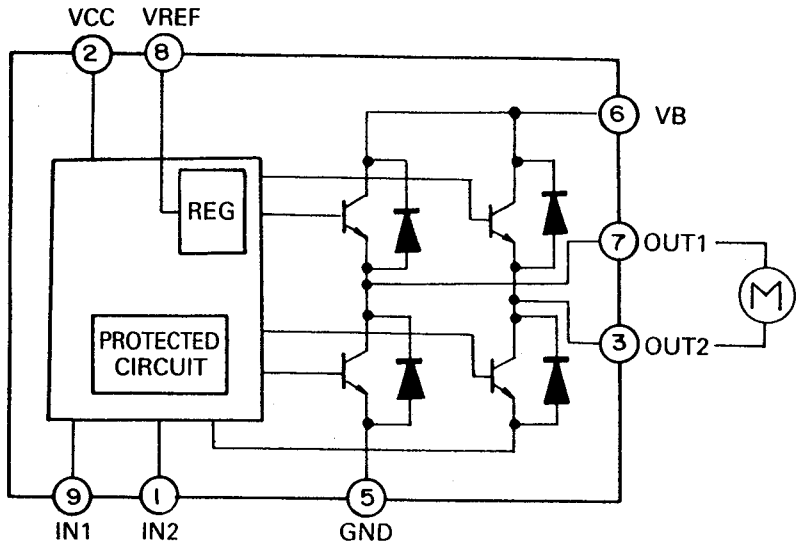
LC7821 : IC101, IC102



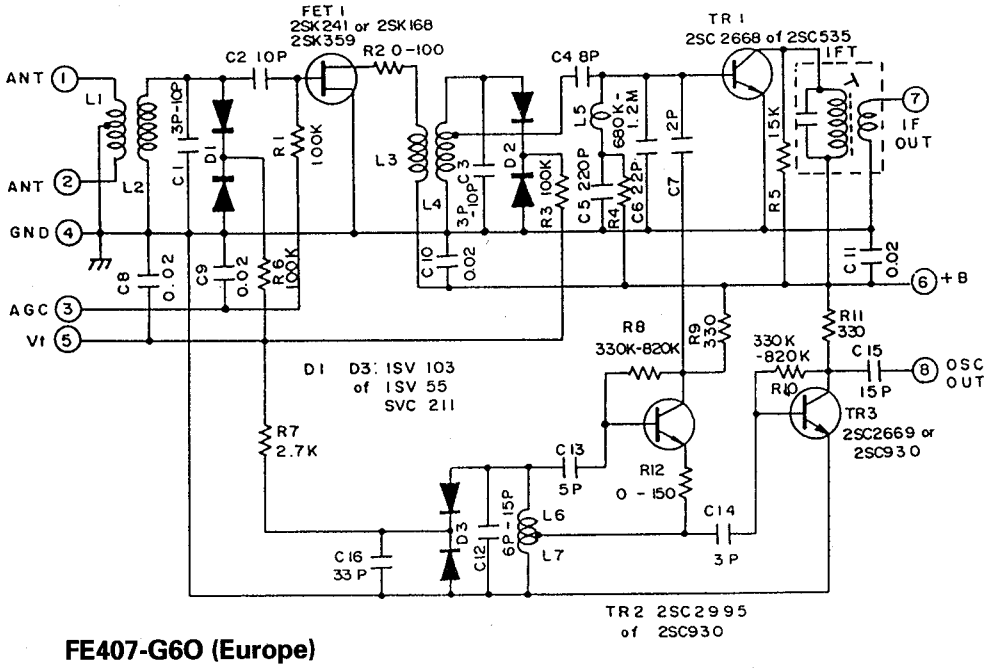


TA7291S : IC603

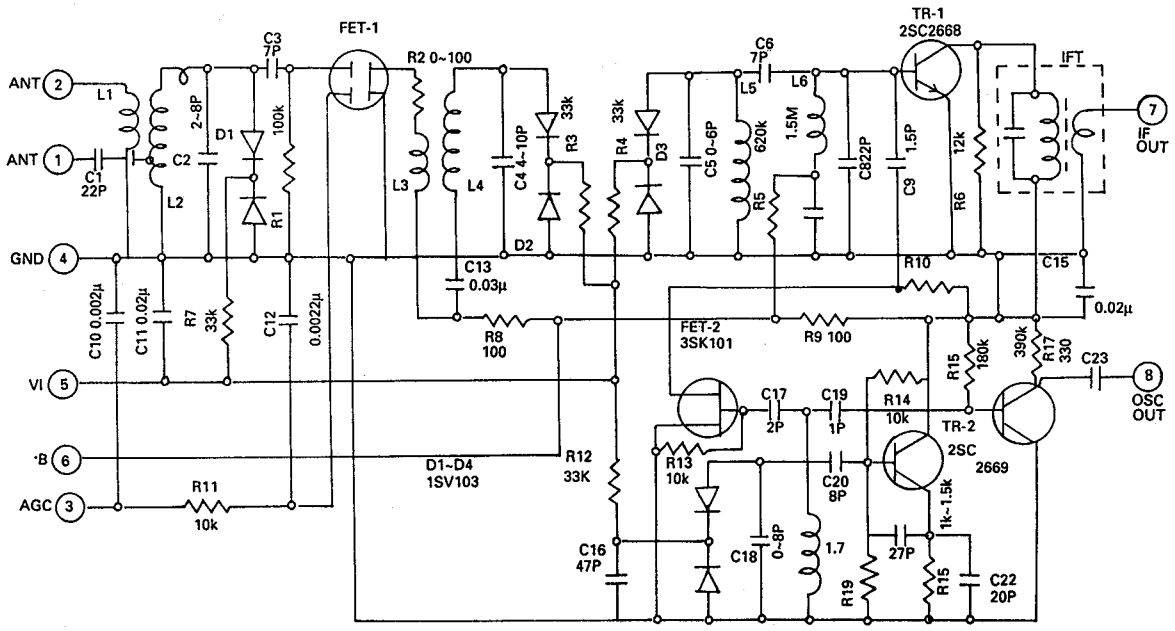




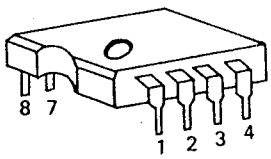
FRONT-END : FE FTH3-505H (USA/CA)

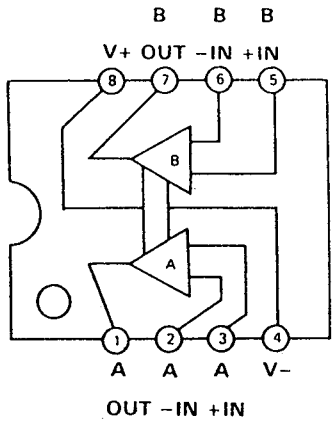


FE407-G6O (Europe)

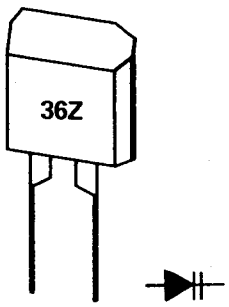


IC104, IC105, IC505, IC601, IC602 (KIA 4559P) (KIA 6259P : IC103)

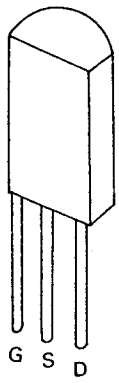




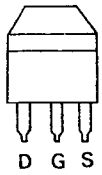
KV1236Z : VD1, VD2



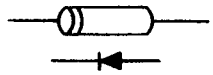
2SK168D : Q802



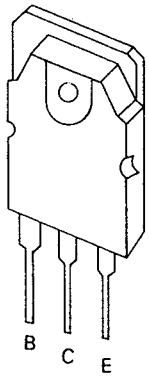
KTC1923Y : Q801

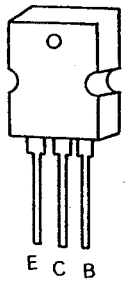


IN4148 : D101~D114, D219~D224
D303, D301, D302, D401~D420
D501~D503, D802, D803
IN4002 : D201~D205
D212~D217
D426
6A3 : D208~D211



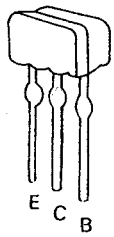
2SC3181 : Q216L/R
2SA1264 : Q217L/R
KTD718 : Q115, Q126
KTB688 : Q116, Q127



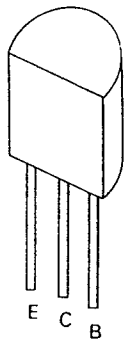


2SC4137: Q213 L/R,
Q112, Q123

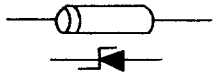
DTA114Y : Q130, Q602, Q604,Q105,
Q501, Q502, Q804, Q223, Q505,
Q506, Q808
DTC114Y : Q260, Q503, Q504, Q507,
Q508, Q203
DTC114T : Q605



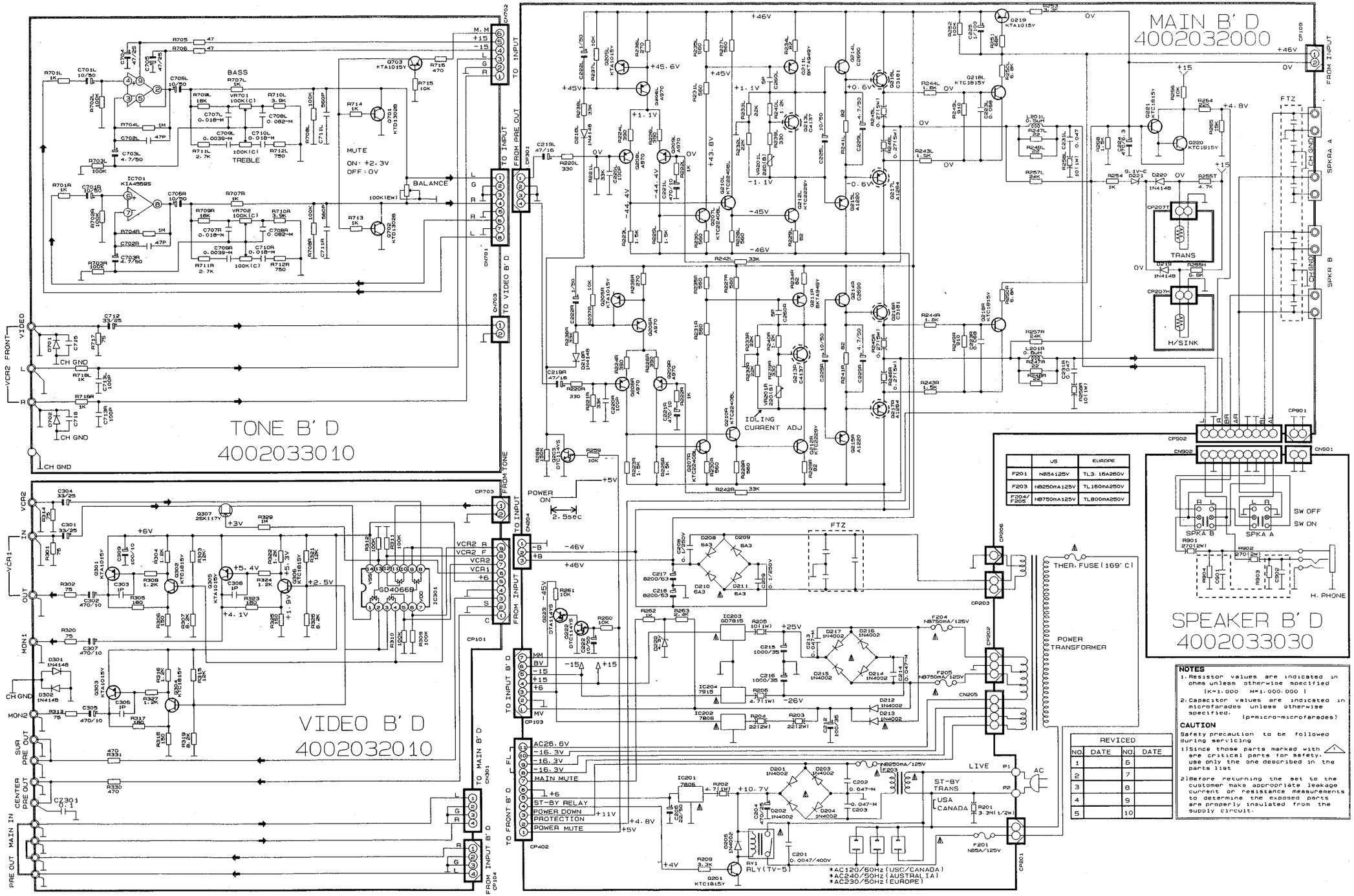
2SD1302S : Q601, Q603, Q701, Q702,
Q805, Q806
KTC2240BL : Q106, Q107, Q117, Q118,
Q2072L/R, Q210L/R, Q803
KTC2235C : Q113, Q124
KTA949 : Q110, Q121, Q211L/R
KTA1015Y : Q703, Q301, Q303, Q305,
Q219, Q205 L/R
KTC1815Y : Q101~Q104, Q108, Q109
Q119, Q120, Q128, Q129
Q201, Q401, Q402, Q302
Q304, Q306
Q218L/R, Q220, Q221
KTA970 : Q206 L/R, Q208L/R
Q209 L/R



ZD9. 1BS : D221, D424 ZD16BM:D422, D423
ZD4.3BS : D222, D421, D602
ZD5.1 : D801



SCHEMATIC DIAGRAM I



	VS	EUROPE
F201	N854125V	TL3.15A250V
F203	N8250mA125V	TL160mA250V
F204/F205	N8750mA125V	TL800mA250V

REVICED					
NO.	DATE	NO.	DATE	NO.	DATE
1		5		9	
2		6		10	
3		7			
4		8			

NOTES

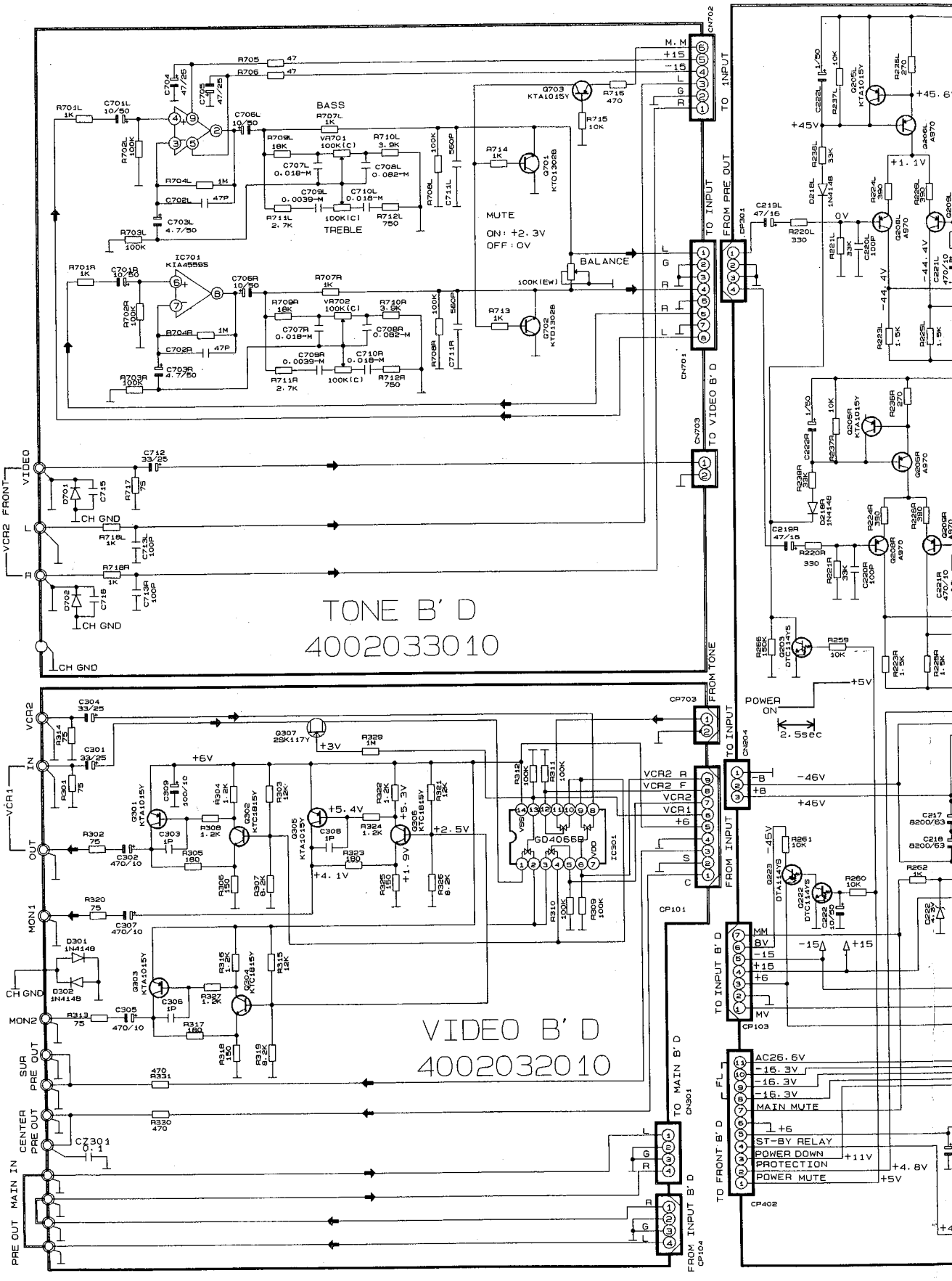
1. Resistor values are indicated in ohms unless otherwise specified (K=1,000 M=1,000,000)
2. Capacitor values are indicated in microfarades unless otherwise specified. (p=micro-microfarades)

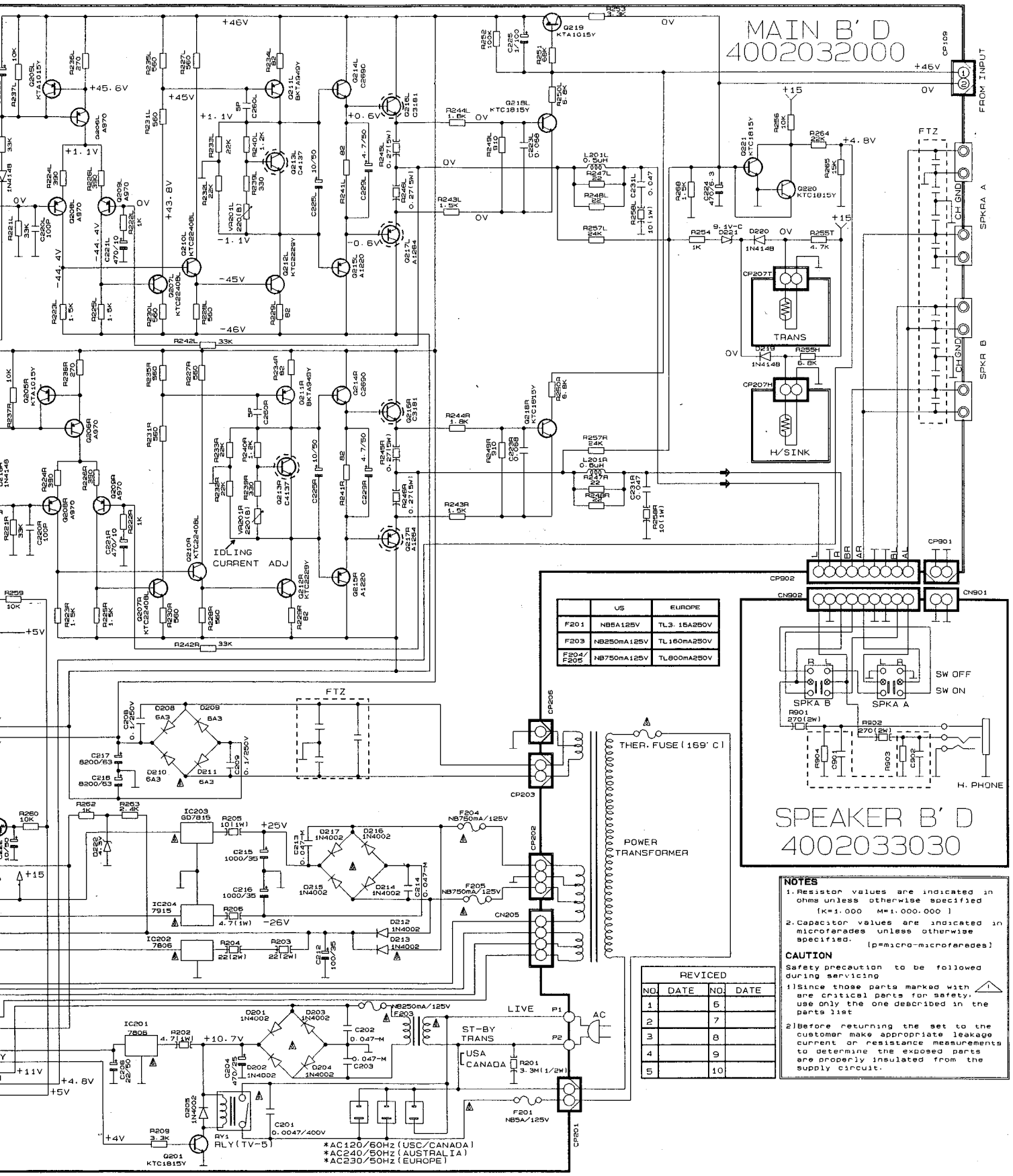
CAUTION

Safety precaution to be followed during servicing

1) Since those parts marked with ⚠ are critical parts for safety, use only the one described in the parts list
2) Before returning the set to the customer make appropriate leakage current or resistance measurements to determine the exposed parts are properly insulated from the supply circuit.

SCHEMATIC DIAGRAM I





	US	EUROPE
F201	NB5A125V	TL3.15A250V
F203	NB250mA125V	TL160mA250V
F204/F205	NB750mA125V	TL800mA250V

NOTES

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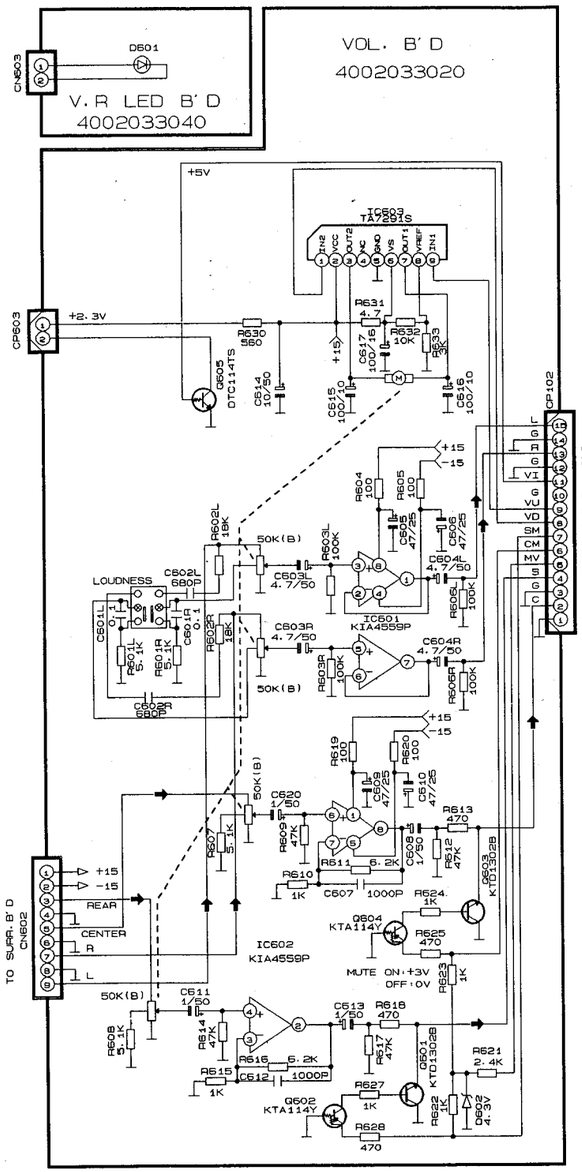
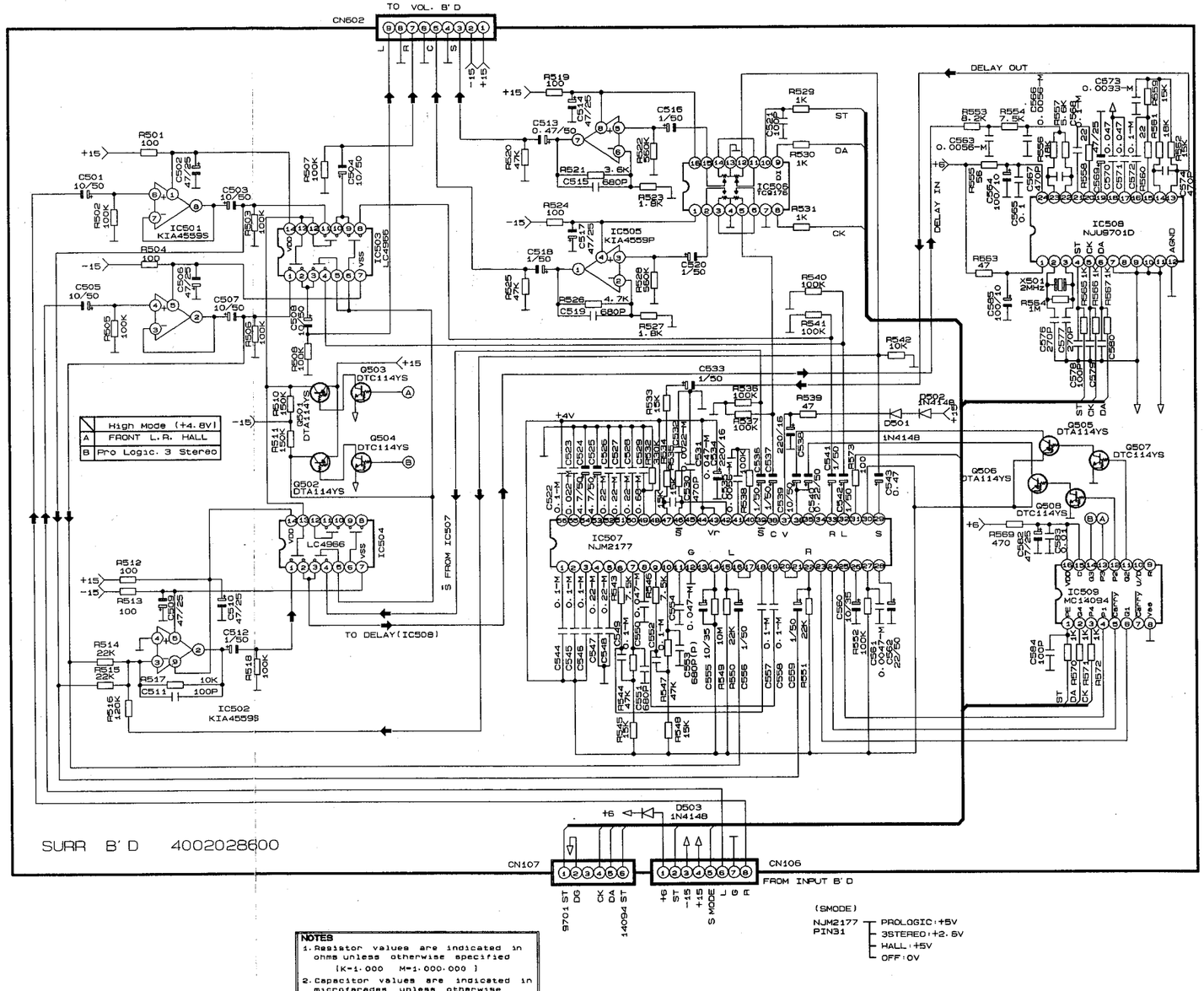
2) Before returning the set to the customer make appropriate leakage current or resistance measurements to determine the exposed parts are properly insulated from the supply circuit.

REVICED			
NO.	DATE	NO.	DATE
1		6	
2		7	
3		8	
4		9	
5		10	

SCHEMATIC DIAGRAM II





	High Mode (+4.8V)
A	FRONT L.R. HALL
B	Pro Logic. 3 Stereo

NOTES

1. Resistor values are indicated in ohms unless otherwise specified [K=1.000 M=1.000.000]
2. Capacitor values are indicated in microfarades unless otherwise specified. [p=micro-microfarades]

CAUTION

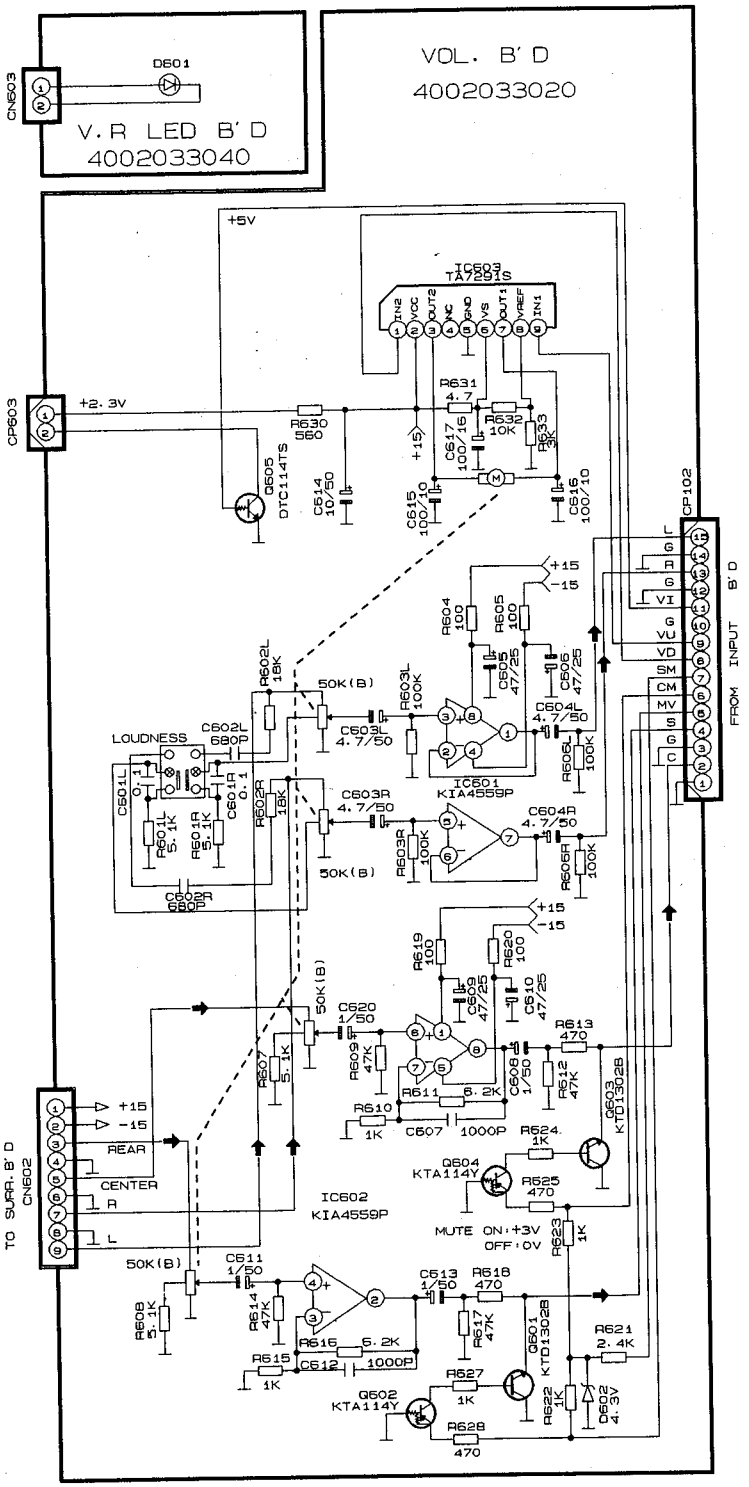
Safety precaution to be followed during servicing

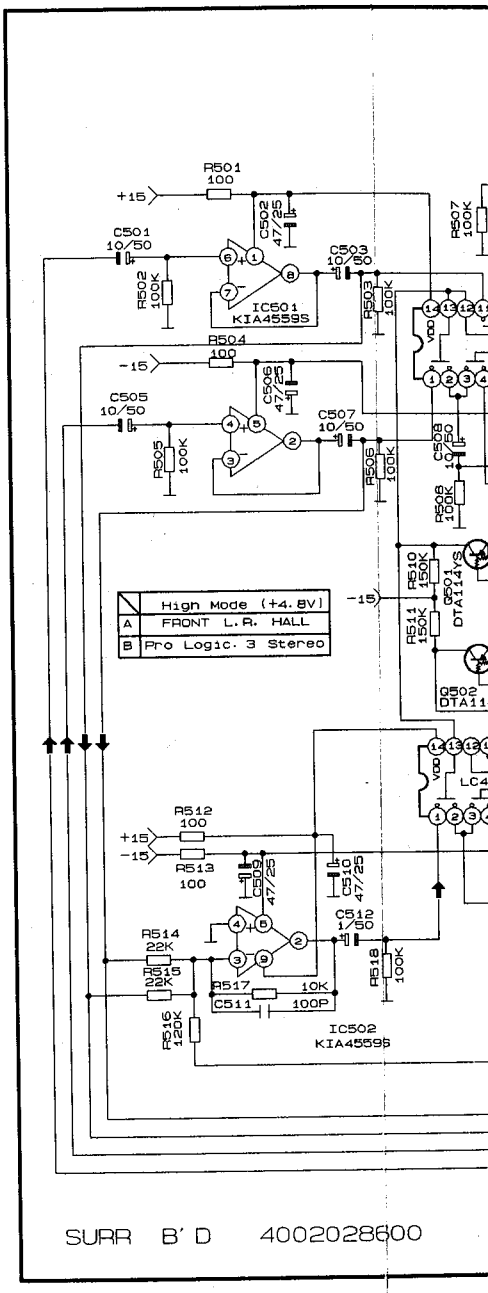
1) Since those parts marked with ⚠ are critical parts for safety. use only the one described in the parts list

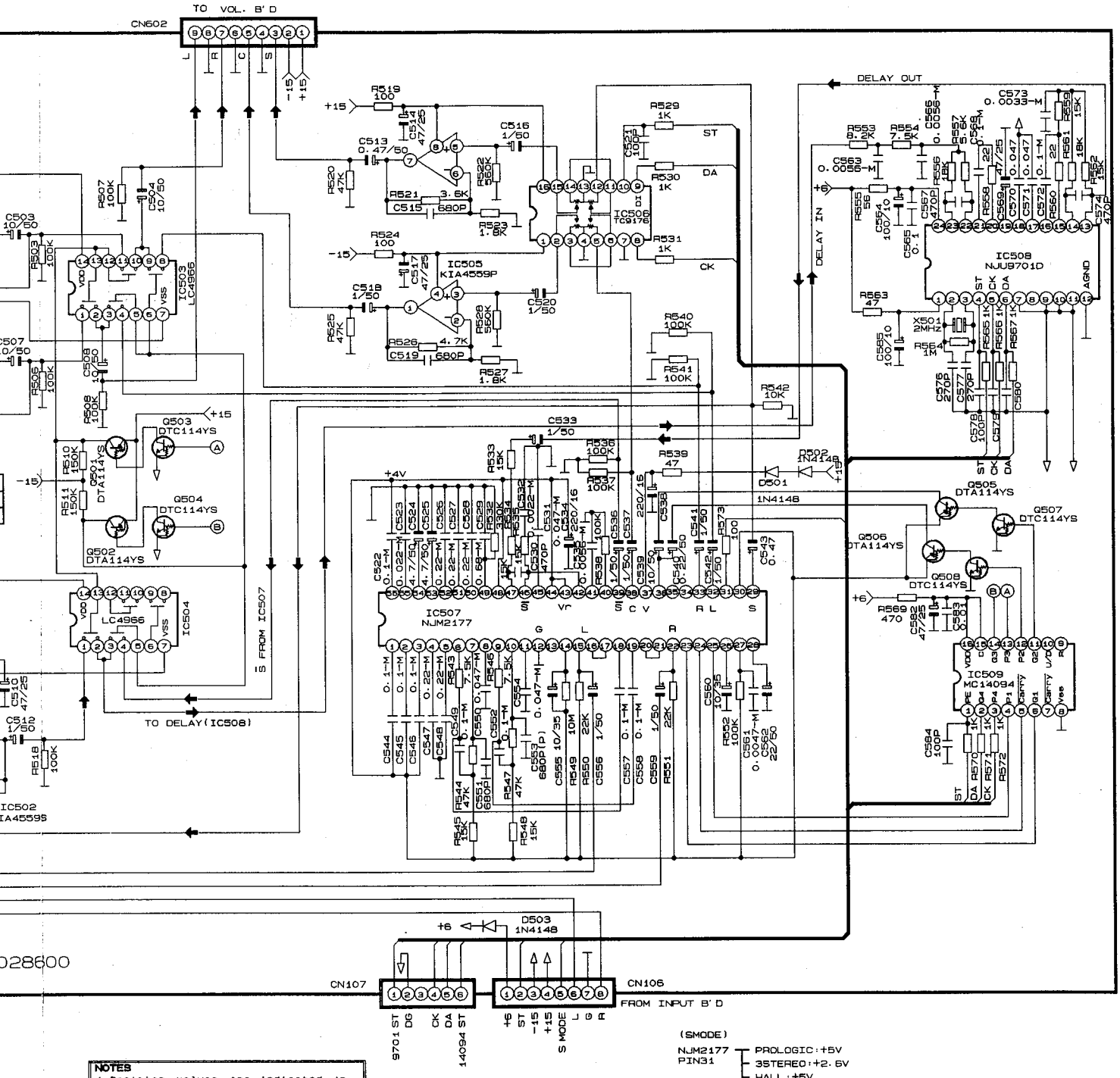
2) Before returning the set to the customer make appropriate leakage current or resistance measurements to determine the exposed parts are properly insulated from the supply circuit.

REVICED			
NO.	DATE	NO.	DATE
1		6	
2		7	
3		8	
4		9	
5		10	

SCHEMATIC DIAGRAM II







NOTES

1. Resistor values are indicated in ohms unless otherwise specified
   [K=1,000 M=1,000,000]
2. Capacitor values are indicated in microfarades unless otherwise specified.
   [p=micro-microfarades]

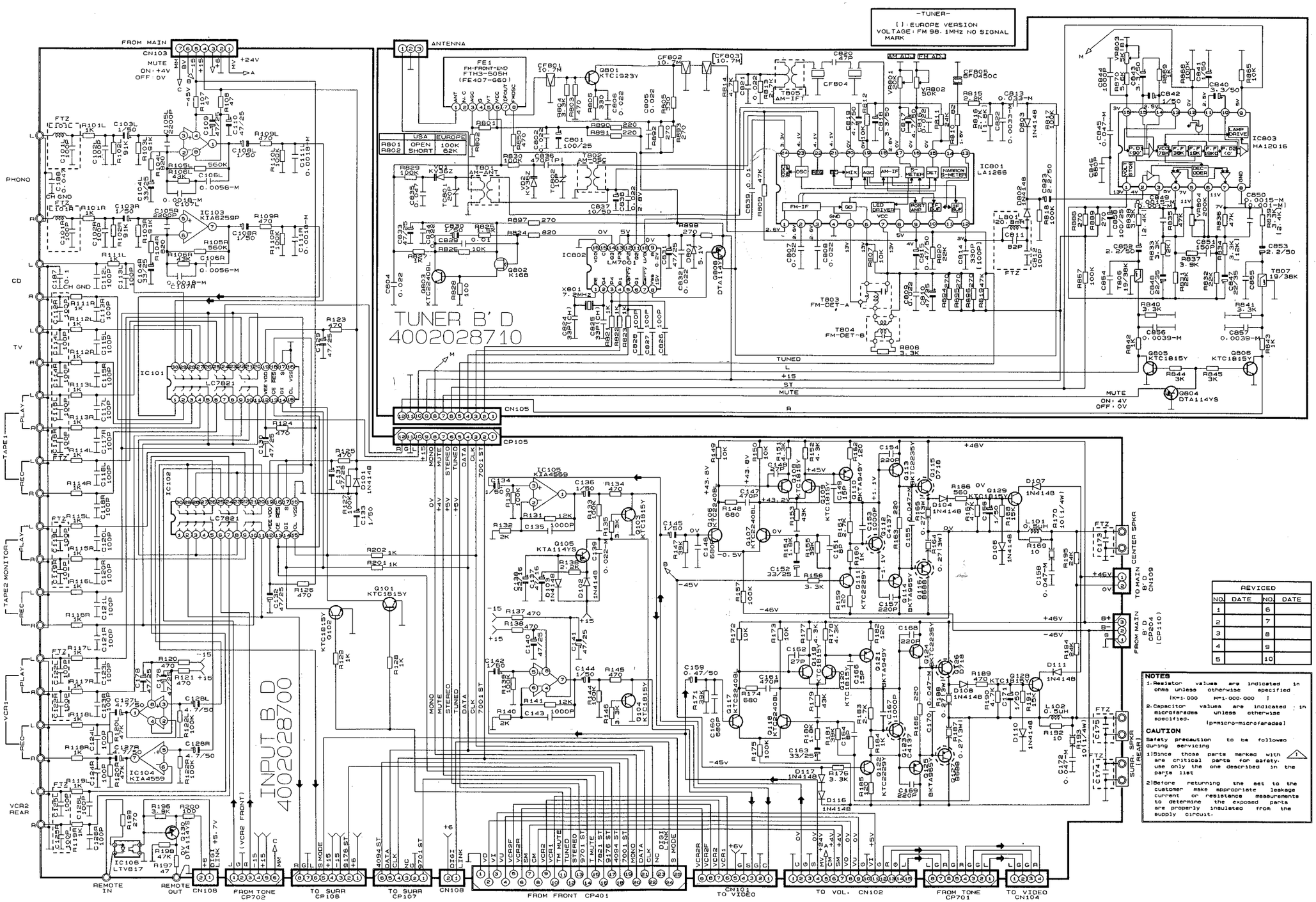
CAUTION

Safety precaution to be followed during servicing

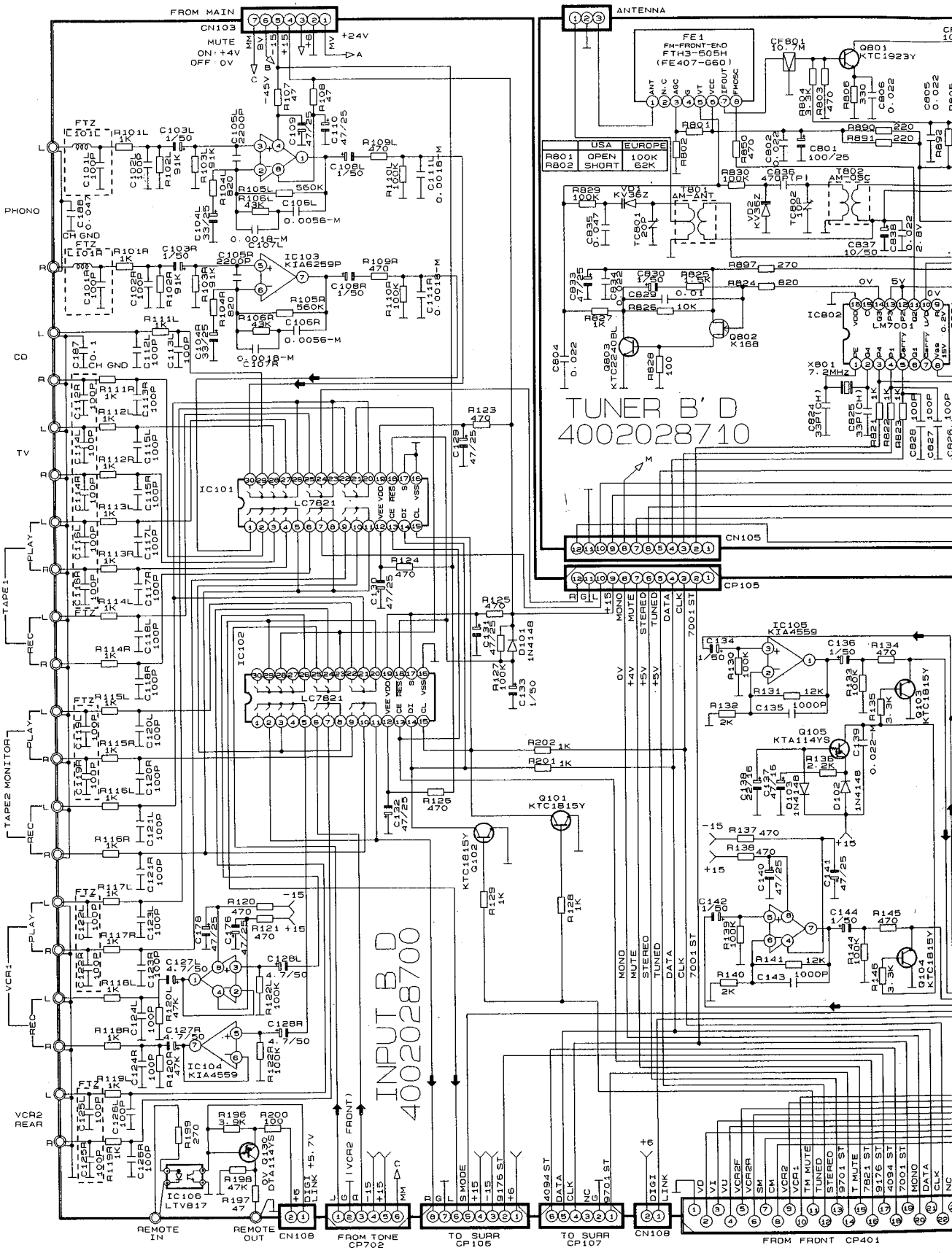
1. Since those parts marked with ⚠ are critical parts for safety, use only the one described in the parts list
2. Before returning the set to the customer make appropriate leakage current or resistance measurements to determine the exposed parts are properly insulated from the supply circuit.

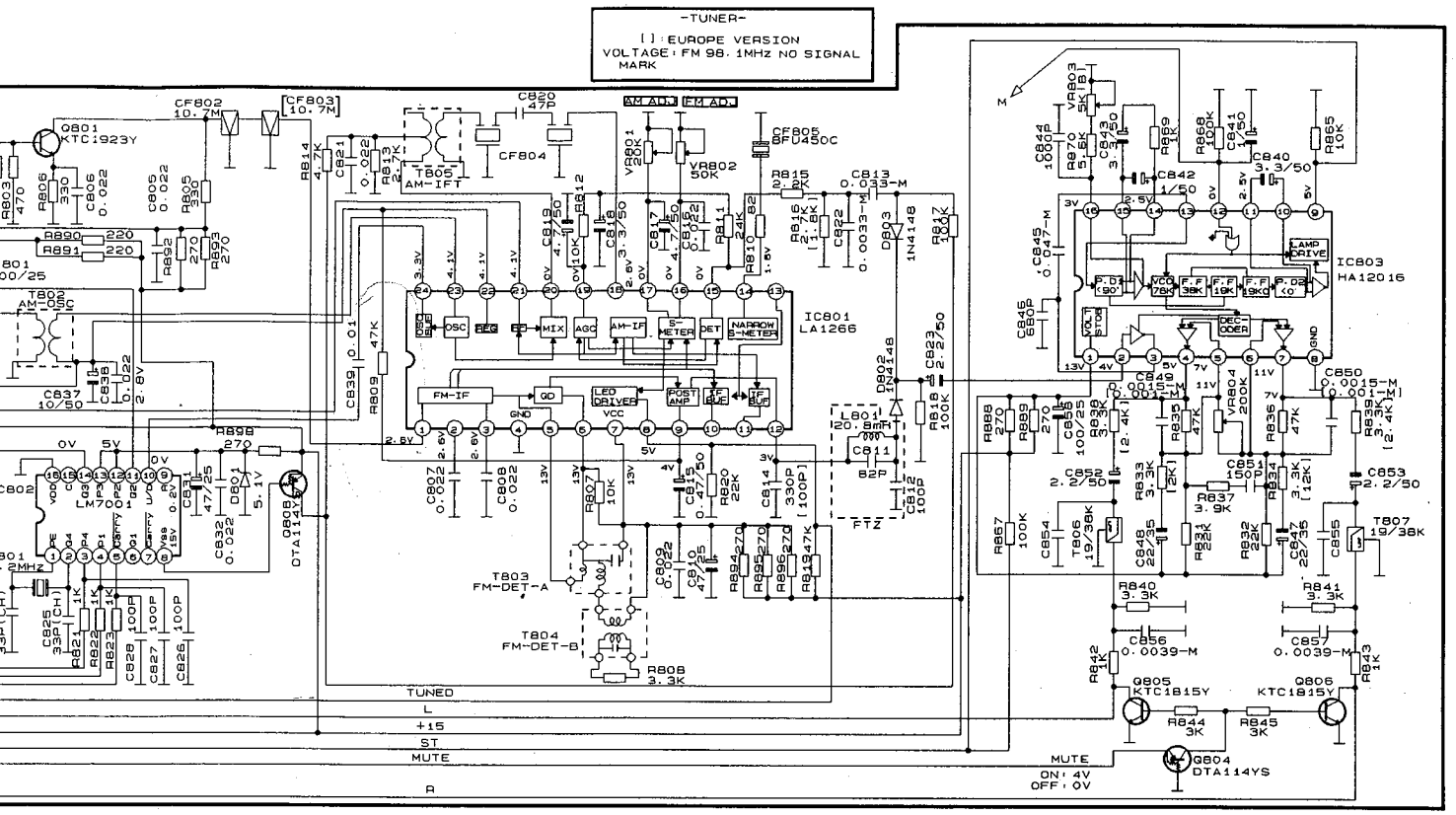
REVICED			
NO.	DATE	NO.	DATE
1		6	
2		7	
3		8	
4		9	
5		10	

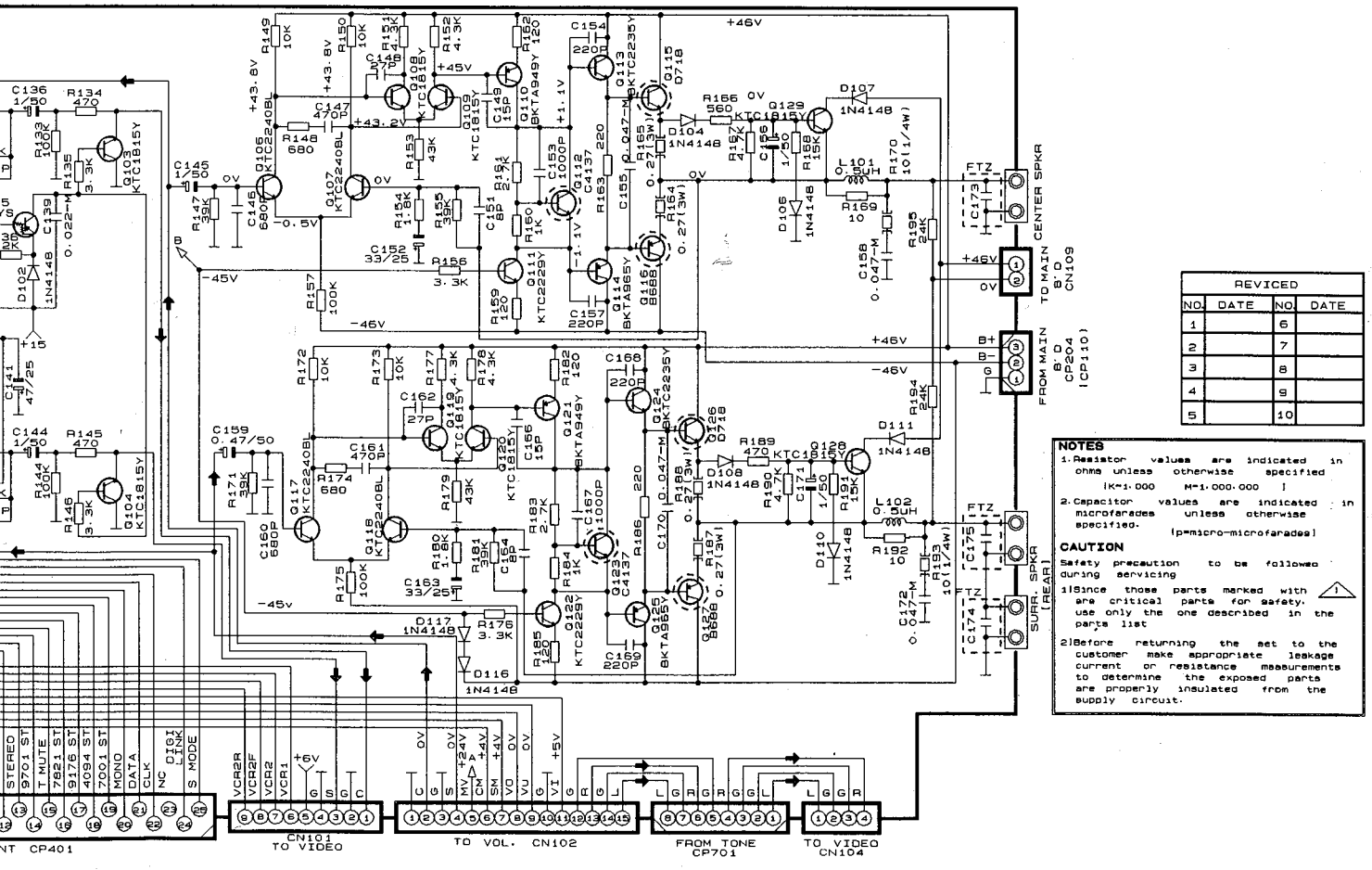
SCHEMATIC DIAGRAM III



SCHEMATIC DIAGRAM III







REVICED			
NO.	DATE	NO.	DATE
1		6	
2		7	
3		8	
4		9	
5		10	

NOTES

1. Resistor values are indicated in ohms unless otherwise specified [K=1,000 M=1,000,000]
2. Capacitor values are indicated in microfarades unless otherwise specified. [p=micro-microfarades]

CAUTION

Safety precaution to be followed during servicing

1) Since those parts marked with ⚠ are critical parts for safety, use only the one described in the parts list

2) Before returning the set to the customer make appropriate leakage current or resistance measurements to determine the exposed parts are properly insulated from the supply circuit.

SCHEMATIC DIAGRAM IV

FRONT B' D
4002033000

COMMANDER B' D
4008500200

REVICED			
NO.	DATE	NO.	DATE
1		6	
2		7	
3		8	
4		9	
5		10	

NOTES

1. Resistor values are indicated in ohms unless otherwise specified (K=1,000 M=1,000,000)
2. Capacitor values are indicated in microfarades unless otherwise specified. (p=micro-microfarades)

CAUTION

Safety precaution to be followed during servicing

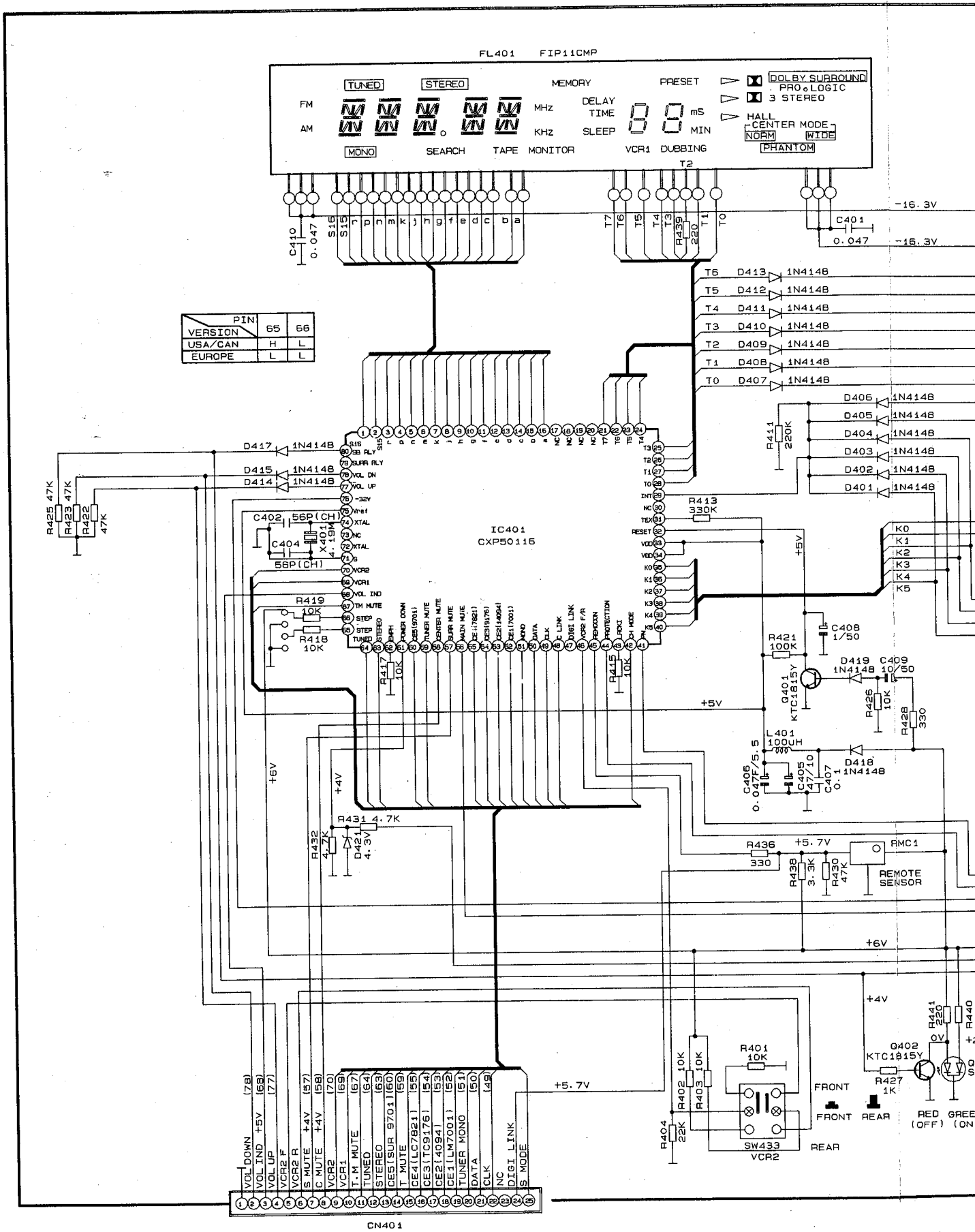
1) Since those parts marked with ⚠1 are critical parts for safety, use only the one described in the parts list

2) Before returning the set to the customer make appropriate leakage current or resistance measurements to determine the exposed parts are properly insulated from the supply circuit.

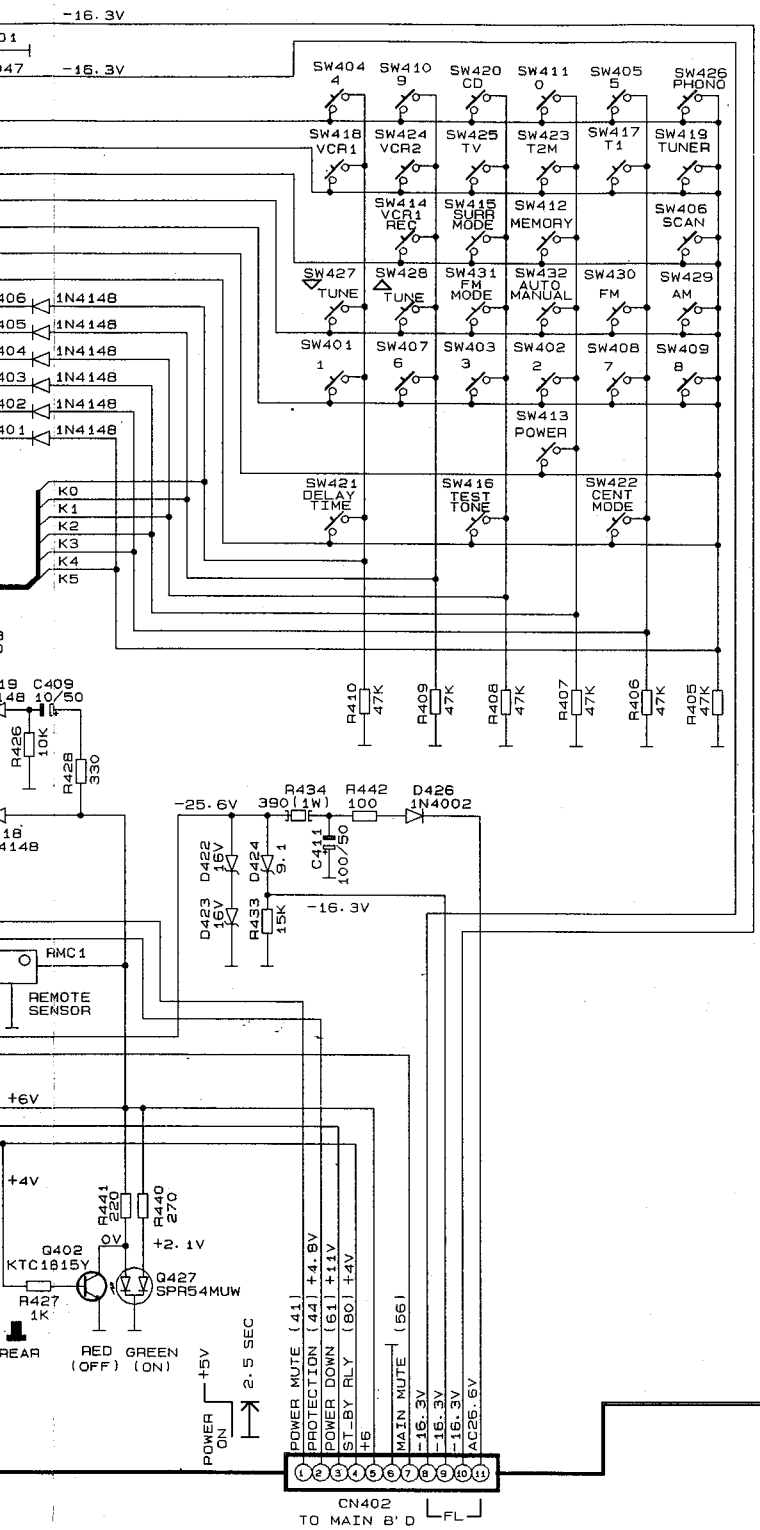
CN401
TO INPUT B' D

CN402
TO MAIN B' D

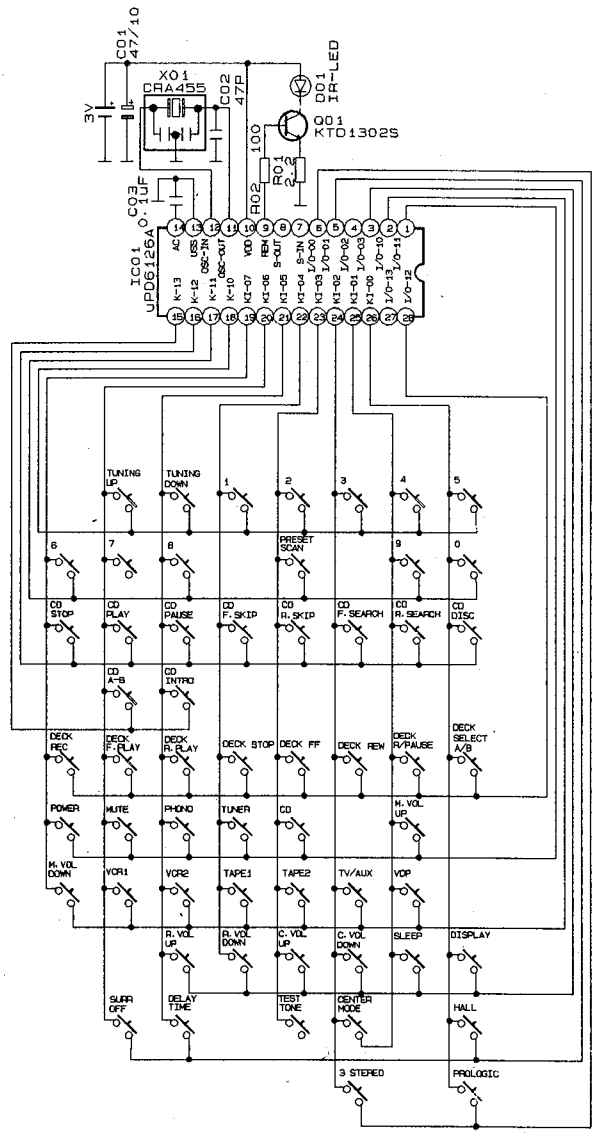
SCHEMATIC DIAGRAM IV



FRONT B' D
4002033000



COMMANDER B' D
4008500200



REVICED			
NO.	DATE	NO.	DATE
1		6	
2		7	
3		8	
4		9	
5		10	

NOTES

1. Resistor values are indicated in ohms unless otherwise specified (K=1,000 M=1,000,000)
2. Capacitor values are indicated in microfarades unless otherwise specified. (p=micro-microfarades)

CAUTION

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2) Before returning the set to the customer make appropriate leakage current or resistance measurements to determine the exposed parts are properly insulated from the supply circuit.